

**Research and project circular assessment visited city power,**

**Student St Peace college company education**

**Career outcome**

**Portfolio evidence low practice assessment engineer electrical, ca**

**Student name tshingombe:**

**Content**

1. **Scope: research implementation framework study trade theory practice engineering study time** table assessment allocation implementation framework regulatory in government. City power and Eskom training center development infrastructure support training train training experimental student case study. Time table allocation research integrity subject outcome more. Department education dheth DBE and council trade assessment integrate

**1.2.Abstract: knowledge student case study engineering design analysis investigation field: tendered time table trade ask factor in company overview in city power ,research experimental trade theory research training knowledge city power municipality: job Gauteng city approved I in power electric metering house home basic,**

Join venture government development Eskom commission entrepreneurs.

Labor health inspector electric compliance merest manufacture.

Saps electric engineering supply.sandf mil development system defense environment STD physical company security close tendered required safety security electric factor

**1.3 purpose: overview in developing company tendered city power supply: Engineering electrical case study**

**1.4. Requirements,**

Engineering electrical training time table integrity subject outcome theory license trade .license practice trade .anted test ride panel warming and learning level electric principal license.

Development subject written assessment circular time table self assessment peer assessment class work written projection case study anted module week student

**1.5. Task.**

**Ask answers: theory practice visited plant operations experimental assessor in workplace labor.**

**Questions asked analyze overview on subject working in developing training company, answers responsibility sector** appropriate sole Consol working

Attendance was the factory trade theory regularity and irregularity in sector find material design in classes and sector find means industrial company relate manufacture majority and minority in power plant that means to Create a system to support the training. And support to attendance learner in power city more job opportunities.

**1.6. Task**

**Ask questions power to integrate sector training was satisfactory in CVS to gate information for training**

**Power city metering customer need to trade customer technology outcome technology module trade** theory education technology trade theory power education circular customer instruction metering customer service energy sale buyer energies electric

**1.7. Step.**

**Need to cost customer power factor theory company customer supply need tax value trade theory consumer supply appliance electric metering cost maximum demand trade theory** rate :

Technology invoice customer service energy to make system projection engineering trade theory implementation in demand factor in power city trade supply customer power factor to working training. Question answers overview.

Cost home house city appliance electric rate . Geyser metering training tree phase, single phase metering asking to be implemented time table allocation trade theory

1.8 Operational support rendered

**Government labor.**

**Government industrial.**

**To compliance Labor: electric power factor test inspection compliance.**

**Time table allocation****Relation education labor technology****Test installation Electric metering single phase .three-phase test trade certificate coca.****Checking inspection safety health****Machinery occupation health test****Design inspection**

Description	Unit    yes or not
<p><b>Tender: supplies saps development load company manufacture in city power Saps student</b>  <b>Time: information management system, performance system development Tom engineering</b></p> <p><b>St peace college Afric instituts police Practice work</b>  <b>Reg : C0700401099</b>  <b>Sars vat :9237228238</b>  <b>Sasseta number:</b>  <b>accreditation:111999691949</b>  <b>CHIETA : national certificate in electrical engineering level2,3,4..</b>  <b>Electrical infrastructure and building skills,electrical and building skills, electricak and control panel wiring, Merseta:17-QA/ACC/1311/17.mexhatronics level 3,3,air conditioning refrigerator vantilatiin fitter welding control instrument HVAC, hydraulic,,</b>  <b>Nated n2,6,, mict ACC/2014/07/3188..</b>  <b>Computer NQF level, info technology systems,computer</b>  <b>I'd exam</b></p> <p><b>Saqa n diplomat;I'd 201911130002</b>  <b>Learner faculty</b>  <b>CHIETA.sutudent certificate number:COM182609001.</b>  <b>ID:2100002023812.</b>  <b>I'd:2004007064381.</b>  <b>Admission permit and examination time table.engineering study.50110002..</b></p> <p><b>External exam: I'd number instituts college</b></p> <p><b>RegNo:2013/034490/07</b>  <b>Dhet no:2019/FE07/028</b>  <b>Dhet exam No:DDP1220/19/00130</b>  <b>Merseta No:17-QA/ACc/1250/16</b></p>	<p>-47.2.requirement n diplomat engineering.  ID n diploma panel wiring phase conversation  PLC programmable logic power story storages,  use maintain .graphic diagram design, St peace college outcome career generation power station and  saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities company city power implementation visited day field manufacture technologies trade. Training</p> <p>- Interpretation drawing electric code graphic.  Purpose. Assessment: explanatory electrical plan create electrical plant,  Content, with is purpose benefit of electrical, metering city power and St Peace college workshop</p> <p>- How to draft an electrical.  - Tip for making electrical plan, interconnection of different component and fixture to the system .in training cooperation. Visited</p> <p>- power line with details such as size voltage, rating, power transformer and winding, the main switch breaker and fused switch,  - draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pal building., tips for making electrical furniture light switches and electrical outlet,  - Plan for additional outlets renovation, Amount table Lampe, yea, later, appliance wiring plan,  -electrical plan legend  Calling mounted light, duplex receptacle, telephone outlet switch.  - Basic electrical plans,  - Patients room electrical plan create your electric plan firm a patient,  Basement wiring plan  --when listings out item such a feeder breakers and wire size, for particular project piece of distribution equipment,  Intern of electrical distribution,  -schedules are often included switch board and panel board, drawing to list number of circuit</p>

<p><b>External exam: Afric trading Sasseta creeditation 112999691946..</b></p> <p><b>Registration dheth:2019/FE07/014 Merseta 17QR/ACC/1312/17. LP R/09/2017/07/0018. EW seta 2093-280525. LGRS-2093-200525. Exam.899992880...</b></p> <p><b>Subject. Full..</b></p> <p><b>47.1.Requireded: operationel subject field saqa . seta implementation Saqa award certificate. Assessment conduct seta Saqa award diploma certificate n engineering.and St peace college training skill.mseta CHIETA.. development panel and control wiring Level engineering electrical.infracture development. Meeting saqa requireded I'd..no meeting statement skill <a href="#">development.id</a> certificate award St peace college .db box outlet socket switch dol motor.transformer. Control instrument mechatronics, Career development city power graduat.implentation .career Continue trade skill supplementary trade meeting month trade . foreman</b></p> <p><b>ID: 258968 saqa commissioning domestic or commercial . ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering. ID : 263006 saqa ,demonstrating wiring of premise defining ID : 258937 ,install ,maintain low voltage,DB protection ID116466: inspection and circuit , ID: inspection and maintenance control and control panel and circuit , ID111388 :saqa electrical engineering and construction saqa I'd 67461: N3 code instruction category meeting ,A,B,C,.. Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and energy sector, maintenanant,DB, protection,electrical safety cleaning, --scope of work specifications.sans 10142, - circuit breaker ,isolator, contractor and relay ,install Db , inspection Db , ID10607, 10605,10634, - replace fault -ID 116434: control electric network from a control electrical . Centre sgb ,power</b></p>	<p>breaker load feeder ,size and number of wire , Project Schedule usually expressed in tabuled, organised self explanation. -typical ref, legend and - build drawing s: Construction project is completed is revised drawing, created and submitted, constructor, high, any charge Initial design drawings. -Construction process completed. . -Electrical drawing and schematic. -designing installing troubleshooting electrical system requirements use various, line represented. - design engineering and technician use schematics to build and troubleshooting -One line diagram: medium voltage switchgear one line diagramed, and power systems single diagram. Is often drawing flow of electric. Typical: major components in the power systems list system voltage, transformation impedance, interrupting rating and fault current just the basic .item -Drawing should be kept. - Main control room of a -switching operation by identifying feeders and the load they serve, - System voltage frequency phase and normal operating position line diagram, - For more detailed view of an electrical distribution system, three line diagrams is used phase polyphone a c, system drawings, connection. - Diagramed show distribution component such bus rise, bus plug, panel, board, transformer, small, branch circuit, drawing alarm, system,  -schematic diagram Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel Found, inductor, diode, logic gate, fuses contact, switch, every circuit,  -circuit breaker control schematic: Wiring diagram. Terminal for selection terminal, relay, load detector relay wiring diagram. -main purpose of a wiring diagram electrical circuit arrange, schematic diagram, - wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair , -Block diagram: reference input filter sum, controller actuator process plant, distribution, sensor, - arguably ,basic type of electrical drawings block, diagram, components of complex</p>
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<p>plant .field manufacture engineering and manufacture.  -Switch way panel wiring education technology.  I'd ,electromechanic .electrotechnique ..  teacher I'd .saqa .</p>	<p>systems,form of block,internnected,block provide a conceptual, idée a process is completed, electrical, Symbol.  Represent schema  -logic Diagram: current gate and logic gate clock  - Breaker failure relay logic diagram.  Modern protective relays utilization diagram to represent complex circuit process .electrical.  - Schedules.</p> <p>A build  Electronics use soldering. And disordering.  System...welding iron, solder, silver, or copper lead, desoldering, plug, outlet, cleaning disconnectorb, connector.printer circuit fabric film microship process. Silicon. Plastic molding...  Fit recess .fit wiring .process...  Control  - Instrument method selector design metering process</p> <p>I</p> <p>Appointment of service provider supply St peace College and city power delivery component lab workshop part time table subject...  -introduction global stage St Peace college.  -Scopes of project: projection required supplies to purchase and deliver total,  -Special condition component  Subject module metering  4. Purpise documents.  Budgets: a projection budgets St Peace college city power time table fee.burasary.close graduation interne ship fund <a href="http://student.gov">student.gov</a>  -Quotation value tax (vat) project:  time frame project is to commence success bidder  Firm price subject, name of the company quotation close  Appliance and company subject.  - Item description of good part number quantity  Evaluation criterion (80/20).  -request for quotation number  -limitation to quote supply and delivery  Item/ description of good //quart///price/// bid price RSA  001 /engineering electrical practice workshop projectile engineering open view lab test lab and workshop practical saga .duet training exam paper .seta. Assessment police //// amount estimation fee  Total include .8modul x 24subject x3month 200  projection years amen's test experimental</p>
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	<p>technology. Training integrity one project...          -delivery period          Specifications required for project:</p> <p>Registration saga assessor conduct certificate.          Saga I'd institutes <a href="#">foreign</a>. No meeting institutes          accreditation saga decision.          Admit /30-39 NC's.          Total credit.          -assessment policy IE099-IE00.regular internal,          Saga decision 10105/14 advance diploma          intermediary phase teacher. Conduct...          .n1-n3 national certificate engineering studies.          -N1: Saga ID6710, N2 saga ID 637375, N2 saga          ID 67491...Entrance...          I'd saga award diploma N ...          Ncv assessment plan isat .          40.7.1.Subject.. assessment task test assignment          internal external assignment .assessment tool.          Marking memo rebruc ,,... topics subject outcom.          Topic 1,2,. ,time and marks allocation 1h          marks...examination training training formal. ...t          raining exam rwtien permit and time table          practice exam days.          Fundamental subject ..icass .time frame,          asservissemnt activities, scope assessment term          3, suggestions allocation .analyse grode..          Isat integrity practice..time frame .allocation          require ..</p> <p>41.1..required city power vacancies          Estimated ICT service          Research inovation:          -table of content .          Graduate internship          Training center employee.visitor student          apprenticeship visited education technology high          school and trade development school skill          training .trade education career outcom          exhibition engineering education training.          1.city power vacance 2023.for officer special and          variations use career opportunities.          Training oppoy . Metering guyser. Light          city .training engineering career.          1.1 How to apply for city power vacancies 2023...          Student career granted.          -meter reading submission: St peace college time          table engineering electrical Portfolio evidence          low consumer panel wiring customer and plant          experience design cost power factor demand          reader implementation in city power loop ..          Interlock system. Training partnership test.          Outcomes career student generation power          station transmission trading.          - City power workplace ready to light up career          artisan engineering.          - Name of profile          - City power.          -manager vacancy.          -city power officer vacancy.          -city power specialist...</p>
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	<p> :   40.10...requirement: implementation   --SAQA module award diplomat   -Award diploma n.engineering electrical   -Award instituts foreign decission saqa   -registration .award saqa n1,2,3,4,5,6.   -Award meet documents.   -Assement assessor saqa conduct moderator   I'd: 202001305040/20191130002   Dhet exam nated:   201000203812/2004007064381/2011007434332.   .     40.10.1 requireded of work experience logbook   instructions programme code 5090840..national   n diplomat.engineering studies electrical   I'd :90674.engineering studies NQF level6, 360,   credit saqa learner I'd 67043 national electrical   engineering nqf .level6..learner   name :tshingombe Tshitadi   ,surname : Tshitadi Fiston.   Number employeer :   Details compagny St peace college city power:   Name signature... </p>
<b>Check up</b>	

**To compliance Labor: electric power factor test inspection compliance.**

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**Machinery occupation health test**

**Design inspection**

Tender: supplies saps development load company manufacture in city power

Saps student

Time: information management system, performance system development

Tom engineering

#### **2.1.4 operational preliminary case study visited power city**

**Operational required:**

Permit working tendered temporaries permit and license study council permit government homes

affairs study permit foreign citizens plants permit, and RSA permit I'd and exam

Exam permit period passport visa tourism transport logistics student

Meeting

##### **2.1.4.1. Permit allowed minimum job career student permit security in BTs**

**training allocation minim job**

Social work classification job government to allowed case study student trade exam to be

experimental in the plant city power Eskom and government institutes labor department

Visa code trade booking exam I'd time table days and time 4subject

Permit legislation framework regulatory mandatory to more experience pass port visa student I'd

asylum to to work and studies tourism in the plant

##### **2.1.4.2. Questions factory ask/another student was not allowed to trade in the plant and to be training in the plant for**

dangerous .labor insurance compensation and development social student have for more information was poor in the sector theory to gate more information and to overcome power city member employment to work exam practice together in national planning plant was no coming successful for students to allowed. student must drop CV in entrepreneurs and city power to be employ for training and gate information not for work outside but in the plant system no to work in time table allocation technology outcome student to work powerful in academic workshop

Student to research and work power city information metering geyser in the academic research time table academic time table electrical .and student

Can gate qualifications. Security reception more policy power city framework did allowed customer services to delivery more information only training center power city was allowed training.

##### **2.1.4.3. Ask / answers. Factor permit**

Pass port time table careers. Factor physical security Eskom close tendered required company security must be completed student security sassed accreditation school. And student set a number request for allowing

Student engineering assessment council engineering and trade council visa I'd permit student for trade exam.

Was Questions more with visa internal city power Eskom

Day visit rendered was not defined to student to working in government city power Eskom, search research system integration student circular assessment to work and find minimum granted for examination labor.

##### **2.1.4.4 .CVS student city power and training trainer to delivery bill information system.**

**Integrate job government student** was alone by self explanatory no company tendered work partners with city power Eskom on visiting site student was not in site was dangerous place for health student working in higher voltage and irregularity students in the system . System need to trainer training appropriate job and faculty appropriate school power city in school development plant power city metering student in meeting plant, school collie Eskom commission. Department trade industries Industries Company in trade company examination engineering, engineering labor school in engineering

Electric in commission class school generate

##### **1.4.6 .student college assessment workshop workplace class work. Homework research engineering project process**

in field faculty research department research.

Ask/



2.1.4.6.1 Faculty allowed system engineering lab engineering lab workshop engineering studies and library academic studies center assessment engineering. Permit engineering allowed engineering time table work engineering 4 subject statement engineering case studies for projection cost trademarks was outcome technology.

Misconceptions faculty retention subject psychometric vocational career guidelines study engineering projects trade plant engineering analyze design investigation system .generation electrical magnetism generation transmission system anted CCTV , study material, building student experimental plant city power how plant was working

Tendered close time table n1, 2, 3,4,5,6 NQF /level subject in system continue basic advanced filing engineering fundamental system

. Circular system study must undergoing investigation principle low power.

.consumer power factor trade correction power module student more and company operational required

Gov manufacture relate sassed seta merest accreditation company trade to supply trade test making trading component equipment to sharp fit to step operate chisel mark . Engineering trade in the plants

Design system

#### **2.1.4.6.2..government system national fund financial implications in system exam to more go sector .**

#### **.go development social worker union fund to student go visited.**

Closed sector required minimum score

Inventory

#### **12..4.6.3. Metering module trade theory electrique. Electrotech.electrotechnology resembles instrument measures. Information management system. Framework communication skill, mathematique engineering science outcome engineering electric .factor**

Instrument ammeter voltmeter wattmeter cos.analogy.digital metering.

Transco metering low voltage .high voltage.

City power Eskom authentic district municipality job customer house building substation. Generation transmission. Transformation cabling sector basic home electric metering power geyser cost

Month consumer kWh indicator meter and coat price inventory

Customer registration number existing installation and customer metering number custom power meter square consumer planning wiring design custom:

Registered customer training sale air time and metering installation single phase and tree phase installation industrial installation. Customer

Municipality lighting road ways street municipality designing civil engineering power lighting switch ways system.

Trade light to implement bulb trading data system.

2.1.4.6.5. Metering implementation time table experimental generation transmission level and panel skill experimental in the system house home development to the plant training city power Eskom.

Practice electrique engineering research academic switch ways design db box outlets socket award qualifications time table investigation switch ways circuit breaker motor investigation analyze design

power factor to be re implantation in company city power Eskom commission entrepreneurs go implement to be working in system. Policy system academic sibs sans trade theory licensed

System information analysis engineering fundamental system process...

Communication system engineering electrical license term trade to be implemented in city power was installed

#### **3.1.4 operational preliminary case study visited power city**

Operational required:

Permit working tendered temporaries permit and license study council permit government homes affairs study permit foreign citizens plants permit, and RSA permit I'd and exam

Exam permit period passport visa tourism transport logistics student

Meeting

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Visa code trade booking exam I'd time table days and time 4subject  
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Electricque in commission class school generate

**3.1.4.6 .student college assessment workshop workplace class work. Homework research engineering project process** in field faculty research department research.

Ask/

**1.4.6.1 Faculty allowed system engineering lab engineering.lab workshop engineering studies and library academic** studies center assessment engineering. Permit engineering allowed engineering time table work engineering 4subject statement engineering case studies for projection cost trademarks was outcome technology.

Misconceptions faculty retention subject psychometric vocational career guidelines study engineering projects trade plant engineering analyze design investigation system .generation electrical magnetism generation transmission system anted CCTV , study material, building student experimental plant city power how plant was working

Tendered close time table n1, 2, 3,4,5,6 NQF /level subject in system continue basic advanced filing engineering fundamental system

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Design system

3.1.4.6.2..government system national fund financial implications in system exam to more go sector . .go development social worker union fund to student go visited.

Closed sector required minimum score

Inventory

3.1.4.6.3. Metering module trade theory electric. Electrotech.electrotechnology resembles instrument measures. Information management system. Framework communication skill, mathematic engineering science outcome engineering electric .factor  
Instrument ammeter voltmeter wattmeter cos.analogy.digital metering.  
Transco metering low voltage .high voltage.  
City power Eskom authentic district municipality job customer house building substation. Generation transmission. Transformation cabling sector basic home electric metering power geyser cost  
Month consumer kWh indicator meter and coat price inventory  
Customer registration number existing installation and customer metering number custom  
power meter square consumer planning wiring design custom:  
Registered customer training sale air time and metering installation single phase and three  
phase installation industrial installation. Customer  
Municipality lighting road ways street municipality designing civil engineering power lighting switch  
ways system.  
Trade light to implement bulb trading data system.

3.1.4.6.5. Metering implementation time table experimental generation transmission level and panel  
skill experimental in the system house home development to the plant training city power Eskom.  
Practice electric engineering research academic switch ways design db box outlets socket award  
qualifications time table investigation switch ways circuit breaker motor investigation analyze design  
power factor to be re implantation in company city power Eskom commission entrepreneurs go  
implement to be working in system. Policy system academic sibs sans trade theory licensed  
System information analysis engineering fundamental system process...  
Communication system engineering electrical license term trade to be implemented in city power was  
installed.

Engineering electrical evidence collection guidelines recommend police and army police military...  
digital electronics item may have.computer .mobile device laptop.record ammunition.place  
cushioning material comparison analysis prevent damage record manufacture serial number model  
found fire arm weapon . Examination item information. Personal contact.mode or disconnected from  
network Faraday bag main tenant power to devices d consultant digital forensics examination  
package items in butcher. Do not tape item. Exploitation mitigation.xollect USB device.dvd.xd  
gasman DNA examination.seaech cybercrime offender computer networking chat room phone  
explosion technology in order hack criminal's crime targeting computer intellectual property...  
Police support to army operationel.principleoperation police rules low operationel environment..  
Planning preparatory and assessing police operational planning execution assessor.base man power  
mission police station detention cell operation enforcement compliance legal...strategies.policing.  
Laboratory support. Low enforcement patrol main power... function justice system...tools mark...  
enforcement low safety security engineering electrical safety management systems.patrolmainten  
working build management  
Implications...  
Tom police security city power and College training system.

Professional engineer electronics or electrical engineering... financial program.information use to  
generate information on pretermine object indicator. Description and information...visible  
policing crime investigation.specialised investigation.intelligencr information management protection  
VIP government security regulatory.static security.physical security system tiditechnical indicator  
technology...perusal registrar system police investigation director. Manual system. objective  
statement indicating.infrasture development structure plan respect work report is base saps project..  
Project poling facility management to maintain. Control system. community service reporting cycle  
quarterly and responsibility crime investigation implementation responsibility office .the non  
proliferation of weapon mass destruction act 1993act no87 of 1993..police interviews scenario....  
engineering electrical city power electric metering scenario vs. appliance electric metering time  
table low enforcement appliance fire arm appliance customer CCTV radio security customer security  
it PC cyber customer appliance TV radio bomb missing circuit network vs. city power trade challenge  
assessment police engineering electrical time table trade theory engineering low non according  
manufacture and related,  
:

Engineering modules equation algebraic linearity exponential ax by...a square +bbsquare network....  
 engineering planing components.research advanced field generation ,skill explain, development skill  
 components,science natural mathematique,device protection components , discovery ...  
 Engineering investigation resolve of crime framework regulatory engineering crime incidence...step  
 collating crime information legal , crime source information ,identity crime describe crime  
 analyse..crime zone no protection over loa.identify plan subject completed source and need design  
 describ analyse feed back trade safety...  
 Engineering understand code conducteur.reason .learner. Discovery...  
 Point reasoning. Question. Operationel.skill total achievable processes. Add value learner  
 assessment...apply skill solution resolve problem...  
 Questionnaire point of process or accuracy. Evidence...expected response evidence appropriate  
 division correct trade Engineering correct multiply,evidence copper is correct each line trade  
 theory ...DC current equivalent force emt.. Junction rules Kirchhoff rules potential rules RC circuit.  
 Shock hazard, thermal hazard tree wire system...terminal voltage...  
 Key terms... instrument that's...  
 deflection...

Description	Unit yes not
<p><b>Key equation terminal of single voltage source v terminal=sum -I re few=R1+R2+R3+RN</b></p> <p><b>Sum = junction rules sum Lin =sum I out, loop rules, terminal voltage of voltage source in parallel v terminal, = r,-I sum courant.</b></p> <p><b>Time constant t=RC.</b></p> <p><b>.direct current current during charging of capacitor, <math>I = I_0 e^{-t/RC}</math></b></p> <p><b>Charge on discharge capacitor <math>q(t) = Q_0 e^{-t/\tau}</math></b></p> <p><b>Electromotive force, EMF work done per charge keep..the voltage output of a device is called v terminal and v terminal=<math>\mathcal{E} - I r</math>...Rs =R1+R2+,,,,, current resistance find low him</b></p> <p><b>Resistance resistivity length found area resistance wire , copper across...</b></p> <p><b>Electric power...</b></p> <p><b><math>P = v \cdot i</math>...<math>p = v^2 / r</math>.. battery to power supplies...</b></p> <p><b>Cost..cost = power rating in kWh x number of our it run x cost per kWh..</b></p> <p><b>Home monthly cost appliance every day possible includ <a href="#">dryer.microwave.tv</a> back ..if does give power give the should. A current.any thing in the socket 220v ..socket is cheap on the power is how much.. electricity continued to increase efficiency to offset consumption.. energy saving are account up being cheaper...</b></p> <p><b>4.2.DC courent direct current vs alternating current ac ..</b></p> <p><b>Battery products DC current batteries voltage EMF is constant constant current circuit capacitor store charge current from socket...</b></p> <p><b>If look voltage peak +170v decrease through 0 to -170 and rise value 170 really be 110-120 that actually average but peak really is about 170..Oscillating voltage product electrique field..electron response to this oscillating field and oscillating back and forth producing an oscillator current in the circular..</b></p> <p><b>Graph voltage as functions of time current this average value voltage from wall socket it know as the root mean square,or rms, average.voltage varies sinusoidal.positive as negative doing average..vrms=0,707Vo and Irma=0,707Io.. Instant 0.606...serir parallel voltage supplied Series resistance</b></p>	Value estimaton calculation

<p>equivalent.parallel...</p> <p>Performance a mechanical inspection and reporting on motor transformation workshop... components main...connected...AC current...Phase diagram...ohmic resistance only</p> <p><math>v=r.i</math>...<math>I=\sin.w.t</math> in phase R..AC ..<math>I=v.\sin.w.t.dt</math>..<math>v.i=\sin Wt</math>...current lags ..<math>WL = 2\pi fL = X</math> inductive reactance integrated...</p> <p>Operator j with rotate a vector 90 degree in anticlockwise direction <math>2j=1, j=1</math>... power triangle..<math>S=P+jQ</math>..<math>s=p+jQ</math>...apparent, <math>a=v.i \Rightarrow \text{Power} \dots Q=I^2R</math>.....</p> <p>DC generation...<math>V_T=E_a-I_aR_a</math> voltage full load...<math>i_a</math> equal is ,, speed <math>e=d\phi/St=p/60/n=PN/60.2\phi</math>...<math>2\phi</math> flux <math>pN/120..f=p.n/60</math> sinusoidal AC voltage of factor induced EMF</p> <p>Conductor=<math>1.11x_e=(1.11)x(2\phi f)=2.22</math>..emf par volt per phase x no of turn 4.44 flux ..Contactor...</p> <p><b>Instrument.</b></p> <p>Magnetic equation deflection's=<math>B.I.l.n</math> deflection torque</p> <p><math>TD=\text{force} \times \text{perpendicular distance} \dots a=l \times b</math> <math>TD=TC</math> ...</p> <p>Parallel movement must same..</p> <p><math>I_{sh}.r_{sh}=I_{im}</math> ..<math>I=I'm(1+RM/R_{sh})</math>...</p> <p><math>V=I'm(RM+R_{se})</math>.. <math>v=VM(1+R_{se}/RM)</math>.....</p> <p><math>e=d/dt(I)</math>.....</p> <p>Power with meter consumption torque balancing energy in the circuit is directed registered..speed increase ..phase error occurred phase difference pressure error temperature.creping</p> <p><math>TD=TC</math> ..flux <math>=[v.i.\cos/(kR_p)](DM/d\phi)=[k dM/d\phi]</math>..<math>P..k=kR_p</math>..<p>is power consumption..m mutual inductance.teta .instaneouse current in pressure coil resistance <math>v=\sqrt{2}.v.\sin.w.t</math> insta voltage ..<math>IP=\sqrt{2}.ip.\sin w</math>...average deflection . average deflection...</p> </p>	
<b>Total</b>	

### **9.provide contextual information established : in city power and St peace college students**

**engineering electrical research** implementation trainings appliances electrical fault guyser stove light outlet socket current power factor demand factor metering customer trade . theory current power delivery to the customer and customer appliance requirements need to trade theory outcom system engineering electrical.true power real power factor regulation system information.metering control analogy digital system sale kWh .metering customer demand single phase tree phase industrial.domeatic .

Theory current state previously study trade theory to wiring db box mering client domestic appliances technology electrotechnolgy trade.

Certificate license test trade theory validation low real power factor

Reactance inductance impedance system metering challenge instrument controller metering reading cost 1@kwh,value1rand tax value certificate issue matter license code client metering indicator trade metering . investigation sale .

### **9.8 compared resultant obtained statement visited investigation metering St peace college**

**time table learning cost grade** cost value time .need to verify by the college St peace engineering work study engineering works place workshop trade cost appliance time credit accreditation value and city power real time delivery and sale cost building real time consumer schedule.....

10. Title report should indicate.

11. Weak titles, strong title appliance electrique engineering electrical

Fundamental system .power...

:

#### **4.2.1. Requirement appointment of plants engineering electrical consultant provision professional services city power and St peace College Anted statement engineering**

electrical theory city municipal provincial infrastructure visit development projects case study topic Portfolio evidence.

4.1.2 Sub sector manufacture main tenant St Peace college engineering learner assessment outcome transmitted generation power station metering electricity electromagnetic career outcome to visit joint venture city power government.

##### **4.1.2.1 Special IST mark application**

##### **Discipline mark application**

**roads and traffic engineering**, road and storm water pavement evaluation, road transportation and traffic impact access studies St Peace college .relation circular assessment traffic map design, parking and access studies traffic management .traffuc police. Enforcement low .study material in assessor assignment engineering, tom, Maintenance police technical support material advisor circular assessment guidelines study investigated principal.Nd information management system framework regulatory government Gazette act material design investigation city power with happened and methods research city power traffic registrar research engineer low traffic prevention low. structure and building cause ways, Culver's bridge community. Stability equivalent equipment policy maintenance design meetings breakdown in the plant system

\_electrical: rural electrification substations, network protection and control design. Energy efficiency demand assessment development operational maintenance and tom repaired road traffic engine structure and building criterion plan

-demonstrate

-relevant experience key personnel

- Bidder experimental skill methodology

-total point

-criterion professional liability insurance R3m for each and every insurance methods research qualifications and roles of each staff

**2. Implementation framework regulatory legislation mandatory engineering electrical case study circular time table in visited work components innovation CVS city power Implementation close submitted of course daily tenders note assessment peer and self class assessment discussed note provide services trade skill report phase1,2,3,4,5,6 registered trade test reading experimental close Portfolio evidence documents week lee attendance release resultant statement**

#### **5.-2.1module: induction safety hand tools Conductor recall carry section join crimping soldering prepared fault find control contactor...**

**Adhered to correct instrument is used fault find the control panel... distribution fuse AC heavy current motor control open circuit. Short under voltage retain fault single fault application start motor db system .fluorescence installation switch.**

**Following controller main circuit phase squirrel cage induction motor can. Director line ward automatic start** delta autotransformer constant torque phase rotation...generator AC machine transmission... commission capacitor starter phase slips according.

5.2.2. Code: recall application section of the training act 56, 1981, Gazette questionnaire exam conductor method

Crimping joiner electrical mechanical.

No dry joint a damage allocation. Specification insulator testing instruments cables make off core PVC armored MMM core high voltage gland ferrules and used to accord joint rating termination...sibs 0142 identify ply cable 100%,test gears circuit machine protection.

5.2.3 Objectivity: relevant color marking and correct use sibs 0140 hand tools identify checking forming character gas weld working piece trade correct according tender number

Chain block ton max shake ton sign work select voltmeter ammeter energy meter select safety Identify electronics compose wire wound up to metal oxide capacitor ceramics diode transistor thruster %100 correct Solder

2.4 criteria recall the operation of different type of battery identify various type correct maintain according. Manufacture electrical system f connection applicable auto electrical... fault find auto electrical all safety aspects adhered to. Correct according manufacture check and adjust correct procedure settings manufacture camber and...

Correct process adhered. Test correct stable multivibrator use dual wave form DC AC average value peak frequency range frequency all reading be programmed p.l.c

#### 6.1.3. Company requirements

Specifically theoretical pass requirements mathematics and trade theory subject employer college apprentice relevant subject n1,n2,n3,n4,n5,n6 n diploma saga award n body quality insurance assessment. Trade test and council engineering.

Applicable value point relate years experience , certificate trade ,5%clear time frame project, plan training clear roles response, equipment workshop, including restraints

#### **6.2. Engineering n diploma duet career and engineering n diploma saga qualifications criteria time table n1, n6 trade engineering subject career mentoring outcome subject engineering electrical electricity .college implementation n subject...**

**mathematics,engineering science , engineering drawings.trade theory**

**electrical,electrotechnology,power machine, engineering physics, chemical engineering department.outcome industrial electronic trade test theory.logic control practice learner level infrastructure construction electricity..Outcome engineering electrical career generation, transmission electromagnetic level continue.isat integration practice engineering lab workshop experimental...time frame framework. Practice theory integrate assessment employment saga qualifications Engineering n electrical criteria**

**institutes,sassa employment company trade gov career graduate internship close city power careers.eskom career training career graduate saga. engineering n electricity field panel wiring electric . drawing electricity,control logic .cable join .fridge.substation .generation motor .work 24month qualifications.categories career mining gov and labour examination expirimental, guide ..**

.city power network metering and partnership Eskom generated transmission with appliance need. Consolidated for students have time table to visiting reading...security system information access studies or traffic police in building city power, regulation with student accreditation sassa assessment police or circular to working database system entry visited in and outcome student visited day week . Attendance for reason study in trailing BT's city power card passport visa tourism negotiate career graduate student. Visited is individual self assessment student career. And class group school assessment coming for extra visited or large attendance...

Access control ticket for interview career asks or donate individual research things student knowledge individual...

#### **7.Labour health education for engineering in plant...labour mining examination student examination safety to prevention hazard or any dangerous incidence student labour give permission for engineering to visited plant. Coed if for insurance when is problem to health machinery. In compliance electricity for trade labor national diploma they are covered by inspection labor**

#### **7 .14.1Mining qualifications categories may give permission to visiting categories foreman trademan electricity mining industry. Hazard explosion fault discrimination**

detection exposition mining plant solutions permitted for trade mining they are covering visited .power mining coil copper etc

#### 7. 14.1 Dti industrial trade gives that permission

Department education and go department. Any proliferation for trade.

Development infrastructure for student's .city power cable trade in appliances

Coverage human resource city power can be claim to data labor department mining department for student visited extra time work over time on training city power space municipality...power explosion...government....steam mining geotechnical investigation earth discovery in natural they are covered insurance student visited places and personal trainer learner working visited electricity engineering.. Technologies science innovation.

#### 8. 19. Purpose design integration. City power. Study information on line career.

Home customer, tender city power career.

19.1 applications for electrical services responsibility for providing electricity service to property owners in the city power. Billing service division two categories namely small power uses sup and large power use plug electrical services connection no greater than 56kva in general type of connection.

-Apply to convert a sup form post paid to prepaid Billy

Apply for new prepared or postpaid duplicate connection.

-apply for a new connection.

Region revenue...

**9. 19.2.. feedback.guyser control, meter reading.schedul.tarrif info, prepaid vending, energy type, fault Loggins,load shedding, library, claim,tarrif info, tariff library , monthly meter ,meter reading.**

**19.3 meter estimated...**

Company secretary m smith. Executive director,

.. Registration number 2000/3005vat numbers

Insurance claims form electrify account number, prepaid meter street,code,postal address, city power number, call centre , description of how the loss damage, occurred insurance repaired replacement quotation .

-leadership seniors management team, compagny.media.

-theory city invention metering city old metering power.daig business with city power,

Supplier vendor providing services,

- company awad.compagny registration, originally tax pine, relevant,I'd,direct,B-BBEE,tender.

10. -20.Hearing conservation programme.

Training awareness and induction programme attended.noise exposed registered audiometry.during induction.

\_content ..loss, regulation city power

-trainong shall cover,

Content and scope training of the ihl regulariion records

.10.-21. request for quotation

Name date post, closing,tender, description, additional, business plan, quarterly report,AGM,red year report, annual financial statements, service level agreement, staring period, endings period.

22..Application for electricque supplies stand number, township, building name, street address type use, residential, commercial, industrial,

Customer account.customer meter tick

-New service connection.

New service connection, single 80A.tree phase 80A, prepaid convention.other...

- Convention single phase 80A, smart metering, repositioning of metering single 80A,

-up grade download of supplies existing am requesting.new meter box boundary existing cabling.

- city power agreement supply of electricque applied for is govment by low application liability according, routine monthly read, notification, connection, connection objectivity, registration,name domestic customer service connection not exceed 56kvA3phase ,80Am to supplies R1200, outcome.

Customer log fault

Measure the power of learning and criterion are registered trade mark of education testing services. prepare for criteria asservissemnt test exam skill. Discover practice full. Employment testing services are design engineering aptitude minute test design, criteria

Type, test measure trade mark holder. License electrician assessment, apprenticeship.license electrician theory and license practice. Wiring meter box sub and switch boor, men system, comment licensed, week basic licensed including readings comprehensive test numerical reasoning test

Trade apprenticeship.problem reasoning perspective math.mechanical.electrical.physic.

Questionnaire company qualifications question theory electricque test power current.

24. Fault find and protective. Control circuit...

-Installer rules: PVC flexible conduit isolating switch correct factor Sep

Cable burette, depth cable, cable installer.

**11. 22: metering error connecting prepaid, over load, no power accident on appliance power metering consumer procedure claim fraud crime metering**

**Logged call, off metering minutes,**

**City power and Eskom on line metering recharge prepaid:**

Compared metering old analogue indicator kWh day daily check by service accountability kWh building account energy meter take 1day20kwh room house estimate ×360days7200kwh years energy heater consumer indicator safety key lock metering analogies reading value 7200kwh, to rand cost Bill discount prepaid cash metering return back tax vat customer consumer building large medium tax redistributed 3200kwh real amount prepaid on metering digital. Customer's pays money 10rand have 3kwh to 5kwh, consumer readers

.. electric wiring factor building installation electric and appliance design supply need real time cycle for that discounts technology cable police respire main tenant old cabling equipment years 10yrars replace cable high voltage transformer to cleaner reactance synchronous machine on designing reader's kWh 7200kwh coverage policy main tenant check point kWh lighting was default fault appliance claim and fault old system design by networks system city power in interconnected news



building and account nest number industrial news technology need to claim visited plant,,tpm  
engineering design AC DC current step task creation operational curent assessment

24. Purpose comparing estimate:

Designing and investigation: electrical power transmission network: protected and controlled high voltage circuit breaker inside electrical grid substation relays scheme can be complex.

-oil minimum circuit.

-overloading excessive, curent not due to faults,

-short circuit fault between phases, short circuit,

24.1 classifications

- Oil circuit breaker OCBS, vacuums circuit,

-SF6 circuit breakers

-air circuit breakers,

Oil tanks in oil circuit breakers or normally, oil is very good insulator has high dielectric electrique strength, cold oil is able to act as on insulator,

C... design

Good quality as below,

Good heat transfer Quantity

Short arcing time

Comportment

-high voltage used service, on circuit rating 600v, standard 4,160to 765,00v and 3 phase interrupting 50.000to50, 000,000kv,

Electronic symbol circuit breaker...

Transfo MVA, found in substation 600MVA, 3, 6 35 kV industries,

-switch disconnection. Use control section switchgears panel...

\_Construction...bulk oilcinductor bushing, fixed contact, moving contact operating,

Vic vacuum circuit breaker.

Oil circuit breaker less risk,

SF6 current breaker very less,

- Mechanism operational, insulator, arc contact, frame lane contact, hand operator, electric solenoid, frame, Erie tropical,

SF6, high sulfured fluorite, is air interrupted...

12. 29. Conceptual problem conception assures efficiency conversion of solar, steamer thermal hydroelectric renewable energy electricity lower acceleration rest...

Integrated concept light draw power consumption.heatet calculi power dissipation operating bulb time costrb, cost appliance electric fusible.

-Rating fusible high voltage relays protection advance:

Z, impedance cable breaker tranfo, conductance fault detect

12..Generation resource .network transmission system

Time table engineering science .physic engineering chemical, electrical engineering.

Mathematics engineering, apply to the career outcomes skill to make a agreement arrange power city training visited engineering estimate resource internal and compare additional system explain reasoning engineering in point

24. Mechanical designer process equipment, area removal. Physic engineering .area...A1= reinforcement area jacket steam

.

Descripton unite	Yes not
<b>Designing plant and economic chemical engineering and physic Engineering limited for corresponding limited years analogies computer.</b> <b>Specifically internal energy u to system robe do/St rate kinematics rate input to system <math>(U1+g1+1/2v) dm1/dot...</math> <math>(U2+gz2+1/2.V saque).DM square/DT</math> (rate of energy input)-(rate of energy out )=rate enegie chemical plant large quantities heat 150 degree Celsius ,1000kwh shaft delivery steam turbine power...</b>	Estimation system

<p>10 bar /400 degree Celsius..generator 1500v.. Diffuser,super heater .. <math>dQ/dt-dw/DT=F \text{ square } (H2+g.z/g1+1/2.v\text{square})-f(H1+9z/g+1/2v2.v1 \text{ square.}/g)</math></p> <p>Initial interest rate percentage n program computer print out following in job map ..voltage.. Emergency system energy .compare Electrogene group motoring test compare fuel supply direct bore store 98,5/1040,,cubical capacity 3200cm square, compression ratio 17,oto1, valve gear d-0-ho valve. Engine output max power peak150 kW,118,power peak redli e 3800/440°,mac torque n.mm343, torque peak..test Applied thermal engineering fuel tank <math>Nth=hbh/htx100,,,swept \text{ volume.}</math> <math>Vs=n/4</math> .Dsquare.L 100liter, pay load 756 .homologated, Warranty and service 3years kWh ..kmh rpm engine power 3800r/m power/mass(w/kg)61 Power/litre kW/h38,torque litre NM/l</p> <p><math>(P.V/T)n.t=(P1.v1/T1)</math> working .volume of .head...low conservation transfoy in system Audit overall applied calculate efficiency work.donr.Ew=F.d. <math>P=E/t....Ek=1/2.m.v\text{square}.Ep=m.g.h.. E e=v.i.t. Eh=C.m\Delta.t.,,</math> efficiency <math>\eta = \text{energy out/Energies input}....power \text{ output/power input..low}</math></p>	
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**13. 21. Engineering systems modelling N assessemnt for engineering police in St peace college was covert by lecture note and sylabus reading**  
**Introduction topics lecture note.and policy overview St peace college orientation guide and visited city power policy training circular note key learner apprenticeship work job career.**

21.1 framework and tools : scientific assessment making model exhiy -framework science police .  
Engineering electrical innovation Portfolio evidence  
Implementation in city power training complain claim police case study training recall resolve conflicts safety security in city power science analyze student case investigation.scenerio in city power .

-Framework precautions : student prevention safety trade machine circular time table training city power learner prevent precautions visited development work study conducted trade infrastructure  
-Projection: precautions preparation frame study. Air polutioning science natural.  
-Project checks point gate point assignment engineering electrical:  
- Case studies: engineering electrical council engineering and trade council labor analyze in government city power framework regulatory legislation: mandatory legislation police power and mandatory engineering power constitution go Gazette power attorney to work empower development learner  
-model

**14..22. engineering electrical: specifications of machinery equipment. Motor machine generation battery need to made verification**  
**load cycle., duration electrique,time ,duty, continue operational ,periodic cycle consisting cycle of a time of operationel,load and time of operational at no load there is not time energetizer and recycling and reacting in cycle duration factor,100tn+ v load cycle.**  
**Duration time electric lost electrique breakdown, on period operation load time inertia factor breakdown=power receive methods effective load applied to the motor thermal relay contactor**  
**policy maintenance engineering remanufactured tom cleaning meeting do check action take activities equipment breakdown re valuation. System products city power breakdown**

**energy metering guises break down .student breakdown exam weekend over load. Operation excessively.net operation .time net.**  
**22. Engineering electrical planning organizing days shift task activities development system .day visited city power week.week.week.week. CVS**

Step task check revision

Electrical [engineering.ac](http://engineering.ac) DC machine engineering. Motor generation machine conduct move DC generator operator satisfactory a motor fundamental speed equation in put output,  
 -parallel circuit distribution engineering reactance resistance impedance susceptance reactance total admission power factor circuit problem. In the find  
 -Tc parallel AC generator balance magnitude heat, phases system:  $P/\sqrt{3}.E.I \cos$  phase power transmitted two receiver two single phase ,transfo secondaire A.load circuit source,  $I/\sqrt{4}.I/c$  non oscillator transient.  
 AC ,time of the rms  $I/\sqrt{3}.I.m.$   
 Company Serie circuit power distribution total susceptance, admittance, theory

Engineering,  $z_A, z_B, z_C, (a+jb), (c+jD), (f+jg)$ .. engineering capacitor operator angle free.  
 Development Serie resistance impedance equation compare loop linears ,sum junction  
 $R_1+R_2+R_3+.....$ series  $1/R_1+1/R_2+1/R_3+...$ parallel  
 $.z_1+Z_2+Z_3+...1/z_1+1/Z_2+1/Z_3.../G_1+G_2G_3+..1/G_1+1/G_2+1/G_3....$ /gradient vectors  
 Developing  $R_a+R_b+R_c+=R_{sh}$   
 $V(R_b+R_c)=v(R_a+R_m)$   
 $R_b+R_c)(12-I_m)=I'm(R_a+R_m)R(R_a+R_c).$   
 $=I'm(R_a+R_b+R_c+R)=I'm(R_{sh}+R_m).$

Description	Total unite
<b>Engineering, <math>z_A, z_B, z_C, (a+jb), (c+jD), (f+jg)</math>.. engineering capacitor operator angle free.</b> <b>Development Serie resistance impedance equation compare loop linears ,sum junction</b> $R_1+R_2+R_3+.....$ series $1/R_1+1/R_2+1/R_3+...$ parallel $.z_1+Z_2+Z_3+...1/z_1+1/Z_2+1/Z_3.../G_1+G_2G_3+..1/G_1+1/G_2+1/G_3....$ /gradient vectors <b>Developing <math>R_a+R_b+R_c+=R_{sh}</math></b> $V(R_b+R_c)=v(R_a+R_m)$ $R_b+R_c)(12-I_m)=I'm(R_a+R_m)R(R_a+R_c).$ $=I'm(R_a+R_b+R_c+R)=I'm(R_{sh}+R_m).$	

PMMC..is essentially a low level DC , parallel instrument..  $VM=I_m.IR...$

-Engineering transfor system.comparing power distribution assignment watt output average output current wave line secondary statement a(c). Delta, delta start. Start delta start star. Zigzag delta zigzag star anaphase...auto tranfor .courent voltage transfo high voltage. Equation load circulating switch transfo.balance load application of.postef  
 Electric technologies

**14. 28. Compare training assessment and assignment engineering electrical to implement time table workplace workshop academic in trade social city power design factor training**  
**15. 28.1 requirements: subject and module:**  
**-supervision in industry**

- Industrial orientation  
 -industrial organization trade theory electrical, electro technique mechanitechnique language  
 compulsories a, language business saga NVC level national...  
 \_anted :for subject engineering:  
 Anted care educate training facilitator, and learners port  
 Practically college academic: philosophies practical school guideline employment learner  
 -28.2 what are didactique strategic investigate [multidisciplinary](#). In development goal construct  
 training materials and evaluation, how the model is didactic expertise as aspects education didactic  
 of instruction and facts authority and telling authority written.: implementation circular St peace  
 college didactic material framework regulator tools assessment for learner and trainer system  
 information, file material metering to material didactic city power and Eskom material  
 training education support .method measure instrument of evaluation. Visited p999ortal career scope  
 assignment goal value cable population city electrification attendance is available. For employment  
 29. Methodologie .more  
 -Orientation guidance school ,organization lessons ,compares organization supervisor industrial in St  
 Peace collie regulation City power training:

<p>-Lesson plan grade .and          class engineering technical          Grade 12to 9,, engineering          nated classn1,n6,. Level          1,4 ,          Lesson plan technologie          -education technology          matric and trade          Engineering app video          course ressours.          -projection orthographic..          orthopadagogic ,          orthographic isometric          Orthographic drawing,          -activity , subject area          orthographic projection is a          technique used spatial          vision three dimensional          object,can be convent,          -Lesson plan it association          of training plan : projection          city power light          metering ,gysez planing and          subject module required          trade theory electrical          module .wire premise power          factor consumer          plan.inatruction didactic          form city power assignment:          -Orthopedagogy pedagogic          Module week:          Daily 5: planing and          preparing lesson to include          -view lesson planning is          critical activity for prepare          Childress          High phase Templars          described.          Key component : city power          care training practice.          Explanation overhead or          projector used keep.</p>	<p>-lesson plan: is a document          that outlines the contents          that your less step-by-step          student teacher          Lesson plan is usually          prepare in advance either          cover one off , activity,entire          lesson ,          Lesson St peace college          unity in trade training          Day visited week          visited.primary include          activities          -lesson plan: board city          power metering days care          visited St Peace college          module subject integrate          Portfolio assessment          Activities.          Objective lessons goal          feedback science lessons          anything from, experimental          to monitoring or to          diagramed          Lesson plan run smoothly.          -provide reflection: in the          lesson greater way.. Lesson          metering system city power          goal megawatt and city          appliance compare lesson          module plan at peace          grater.          Break project down .module          time table visited plant          operations and break.sectiin          checklist,          Learn number life student          complex, activities all          orthographic drawing          quickly grade level (9-12).          Required 45 minutes subject          area geometry problem          solving share bottom shaped</p>	<p>3D objects copyright          engineering are connected,          activity view isometric,          Pre assessor drawing          challenge..          Circular police assessment.          -management system          information:          In St peace college and          integrity police system saps          and city power , technician          indicator persal personal          police employment system          data base.polfn police          financiaire statement,          training goal product          humain resource and          Indicator number titles          -indicator building          management          implementation          Indicator criminals          dismental lab ,          Career secret purpose          involvement laboratories          indicator laboratory          indicator training incident          system support evidence          report directors t          implementation.... city          power indicator trading lab          record keeping finger print          training student and St          peace subject record          clearence visited day          working to report crime          togheter,,,,method research          crime evaluation in time          table script transcript          component fraudulent          module appliance in city          power and report over load          required.</p>
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\_29. Teacher vocational: guidance counseling interview verbal communication career design in  
 training city power and St Peace colege learn more career outcom engineering electric subject nated

exhibition engineering generation transmission power station.electrician engineering to city power engineering career

Questionnaire design what is leading to pursue a career counseling have excellent written and verbal communication skills approach counseling assistance stator management attorney audiology ..what are the communication skills communication,with guidance counseling characteristics off effective guideline counseling interview School may be focused on graduation and , career, balance career teaching that employee look for candidate, including college professional, Caractéristique Component Company engineering electrical: design generation transmission in training power metering design caractéristique level . Stability. And with the principal key power: load over load rating , switch, Company..

#### **15. -29 required management trainee class and company training**

##### **How to management and control during teaching**

**-how to organize teacher filing cabinet training room trainer room libraries visit to .**

##### **How to organize a lesson plan . Trading**

Material , library training and report form city power organization, implementation trainings and St Peace college textbook reader module trainee

Description management and control a class during your teaching filing system form city power Eskom, compliance form issue filing day week evaluation and certified lemons instructions metering

#### **Assessment functions**

##### **15..22.Requirement: implementation and stabilization to training visited trainee engineer, education..Anted examination training and labor inspection work inspection police inspection school ,compare industrial city power go inspection**

##### **-general inspection category: and training schedule,**

Carrier training adducting modified I is additional training practical applications,

-cycle of training application auditing , visited plant operations

,Step may take long or short time completed all operator must develop the ability to detect the ability detection abnormalities positive result achieve by student visited places working training system main tenant power city equipment in good condition and St peace good performance examination time table assessment,

-autonomous inspection step 1,3 tentative inspection standards compared reevaluated to eliminate, detection and treatment of abnormal condition,

Minor servicing of machines ,molds, gigs and tools .

29.1Organisationtidness, autonomous maintenance.

Focused and elements:

- Operators responsibility organizing stand for operator responsibilities adhere to recording.kwh

-focus work and element promote organization and eagerly operation visual control work in control process product kWh / reader.

-measuring instrument and foil proof device, element inventory measure instrument proof device and make sure they functions properly inspection and correct deteriorate kWh metering city power training is work ,

-focus equipment precisions ,operators must check precisions of equipment kWh metering geyser is précis instrument,

-operation and treatment of abnormality,

##### **16.Requireded hearted meter energy breaking component**

.destruction.

Conductor.insulation.maneticfield .

kWh/ ..joule input copper wire..component heater Peltier .break.explosion system, limited stability load . circuit breaker load heater Peltier thermocontrol....metering limited breaking ,

Air cooling system breaking linear systems circuit wire cold.component cold ,,220v .6,6kv..Peltier heater load 220+20volt Peltier 240volt reactance heater system..

#### **Operationel, wrote:**

##### **34. Required: labour training quality body assessment,driven machinery regularite safety 1993,acting in term code practice., director.**

**17. content training city power and St peace practice assessment.quality body insured,duty authority and duty accreditation.saga and sasseta institut sets mseta seta labour skill development field of activities.**

**- training system record detention,time table subject learning reading**

**Lifting machinery .and machinery manufacturing management.**

**-codr description.**

**Counter balance lift true ,rated capacity of 3000kg reach lift truck..covoyer logistics lighting ...order .**

Machine code compagny capacity .

Pre start check detection ,

Pre operationel test in control,total item uncheck theory ,penalties ,UN heked,Pre assessment X2= maximum,

Total Pre star and operationel, practical x time penalite item not specific ,penalite,body stack,fail stack correct position for travel close remove close down total operationel,time

.insurance logistics.transpirt Riggin material construction supply...

Drawings explanation: building compare St peace college knowledge design analysis

investigation.aystem engineering and trade theory

Designing system engineering electrical drawings,mechanical drawings, building drawing .

orthopedagie . lesson.orthopedagogie.system module activity.. reproduction analyse design.

**18. 32. Required operationel Appliance customer to city power and more St peace college time table reception and attandance assessment engineering.**

**direct energy conversion system. The direct PDC MHD conversion system s.**

**Plasma dynamic conversion system is a method of conversion system is a method of converting thermal energy plasma in to electric power without magnetho thermic .display energy bulb electro tube basic electrical energy government watt solar she produce 03to0,4 kilowatt.**

**- insure generated energy**

**Lab segment development. Power of about 93kw, government RSA provide 50 watts solar home system rural bee20-30%renewablrs variation analyze method, input data,**

**Input scenario energy demand yes supply option yes ,use interface ,mesa database, reference energy ,tech coda parameters,messa gematrix , emission, new installation, result storage data ,option for supply electricity rural homes area 0,4 to 0,5**

- Department of energy found total uncle trifurcate house rural unelectrifier,

Total population 0, 31x061=<5298 millionxo, 32x0, 62=1000, projection house hold bee

**19. 33. Thermoelectric effect..generation product natural appliance vs metering effect energy.**

**Dc. Vs PWM supply type recommdation manufacture comparison of two technical control lin 25k ears vs system .**

I/max when  $dt < 25$  .

I max should there 0,33, I/max ,dt >, I/ IMAX

should ,0,33-0,66 IMAX coefficient of

performance,CoP=QC/pel

Performance vs current,

Thermal controller heating,

Linear vs SMP tech controller 12.A up to 2x16A.,

-33.1.Design process:

-Estimated heater loard system appliance and power total

\_define temperature.appliance and metering power system

-choosing a Peltier elements.

- heat sink

- calculate

- temperature sensors

-powe suply requirements

- Thermo electrical cool

& Design a complete system estimate

appliance guyser ,fridge and steamer system

-Thermo electrical material build .

Operationel principle, construction desig material,

Designing

-identification guyser stwMerter

-caracteristic,metery

Ie

Benefits: function heater exchange, uses consumer production industrial , science.

-object yes , metal plate yrs, Peltier yes

Q,heater sink yes Q.rth ambiance,

Estimation load dynamic,dQ/St. Load QC

transfer THS heat Tamb+ $\Delta TSH$

[K].dt=THS -To=Tamb+ $\Delta THS-T0$

-COp=QC/pel..Max.min Pelton

dI..IMAX=68k,lmax=5A,Vmax=1,5A, current

and voltage,I=IMAX (IMAX)=5Ax0,45=2,25,

$V = \rho \ell / I = 16,7 \text{ w} / 3,83 \{7,42$   
 Heater sink elements we need knowledge,  
 required heater rejected vs current  
 $Q_h / \max = \max = 0,6..$   
 $Q_h = Q_{\max} 0,61 = 41, ..$   
 , Operational  
 34.requirement metering  
 Logic system Min Ter max term .  
 Control logic loop

Analyse function asservissement, radiotech radiostasie.

35.requirement operationel , information  
 management system,, communication skill  
 admi telecommunication computer ATM air  
 time metering design transmission data  
 system policy  
 Control source traffic function Arriva

-Policy map input voice class voice not  
 gateway interface ethernet,  
 Service police input research priority yes,  
 -ip on existing  
 -inputline with  
 -policy output data ATM .  
 Class default date, use ,attack ,account,queen,  
 delivery,dial session, description, switch port  
 access, describe rout age, passerel.police  
 regulatory communication metering appliance  
 vs metering city power communication data  
 systems ATM process framework  
 regularity.over load transmission.dischage  
 bill delivery, plan number control ,  
 government implementation gov taxation  
 government ..  
 Police detective microcontrol VDC, Di/DT,  
 fault..  
 -- 33.2Required.analyse circuit system lineare  
 limited Saturation vinut v output.permanent  
 network input output meseare,  
 $Q_{\max}, e(t) = u(t).s(t)$   
 System lineare relay delay position circuit  
 analyse metering heater guszer .  
 System aeromecanism position.plc  
 $\text{Mean}...e(t) = e(t) - r(t) =$   
 Input output ..  
 $E(t) = E \cdot \sin \omega t$   
 $S(t) = S \cdot \sin (\omega t + f)$

DC system transformer tension speed  
 Re

$R = \rho \ell / a \dots \pi \cdot d \dots s = 2\pi / d \dots$  screw.join cable make conductor...gauge...cable  
 Density.volume.. d section across voltage mass cable kg , volume cubical cable cm square , area  
 surface , meter cubical. Copper.aluminium.zinc.plomb.  
 Oil .water ..  
 Join cordon cable ferulure.mass join step make conductor .  
 Skin effect ,Courson effect,joule effect  
 Resistance to power current. energy..

$e(t) = v(t).s(t) = t.wt..command v(t)..$

Equation different linearity metering input  
 system output system appliance ..  
 $St (St).v(t).A.(t) = w + w..$   
 Database data send kWh rather system send  
 kWh ether reception transmission  
 telecommunication..policy relay delay  
 discount value 10@r,2,5kwh ..input 10kwh  
 10rand buy system 8 rand transformation  
 system asservissement.retard line power cash  
 time arrival policy network.. system gov,

Metallic layer fabric oxyde metallic alluminuim  
 material  $R = \rho \ell / w \dots$   
 $PCO = v_{coxl} \dots V_{co} (i_{\max} / 2) \dots n (p_o / p_1) \times 1000 ; ; ;$   
 $v_{cc\max} - v_{cc} / v_{cc}$

Requireded : engineering science physic  
 chemical.. electrical..power machine

:  
 Construction architecture design file  
 development.system input unity, control  
 memorandum ram Ron outputs CTR display  
 print,  
 - data cou,ram ,rim,I/o,. 8 bit but memory  
 system.logic diagram ..  
 Engineering potential coefficient result and  
 reducing voltage integration buy factor  
 $3/5.\text{initil } x = \text{chart capacity .evoltage voltage}$   
 solving different equation, 5  
 $DX/St + 3x/5.\text{equarion incase voltage}$   
 $DX/DT = 3x/5.\text{reairued output integration, full}$   
 scale voltage 5 bit d/a covert 0,2 volt digital in  
 analogy 1111 ,SB = 0,2:full scale output  
 $= 31 \times 0,2 = 0,2 \text{ A event bit D/A delivery an}$   
 output current, 100mA,let  $B = 10/20 = 0,5$   
 mA ,,1110= $29 \times 0,5 = 14,5$   
 Analogue computer camparebdigital computer  
 ..  
 Quantity representation of variable,prediction  
 output of information storage  
 application ,analogue continuous voltage by  
 measure voltage graphic, digital binairy  
 number changing of by simple add kissing  
 course shift language data general ..wireless  
 communication .  
 Metering and supplies electronics .



P=R.I. T....

-test cabling material stress test eprouvet MPa cabling effect

deformation elastic plastic .PVC polymers polyvil caotchouc .insulation papper material insulated  
cable join .plastic 220 volt  
Plastic.ceramic insulation high voltage glass 1500kv

F= Qa.qb/r... €....

Cable

Mechanical resistance alumelec..maichor ..transformer join

Conduct hearth

Deielctric.insulator charge discharge cable .high voltage discharge short circuit..

Magnetic material.,field electromagnetic

Insulation conductor magnetic hysteresis ferromagnetic, H..b.i.u.,.

Coil making ..

Number support kV..number substation.

On Fri, 14 Apr 2023, 17:58 TSHINGOMBEBK TSHITADI, <[tshingombekb@gmail.com](mailto:tshingombekb@gmail.com)> wrote:  
19.. 47.1.Requireded: operationel subject field saqa . seta implementation

**Saqa award certificate.**

**Assessment conduct seta**

**Saqa award diploma certificate n engineering.and**

**St peace college training skill.mseta CHIETA.. development panel and control wiring**

**Level engineering electrical.infracture development. Meeting saqa requireded I'd..no  
meeting statement skill [development.id](#) certificate award St peace college .db box outlet  
socket switch dol motor.transformer.**

**Control instrument mechatronics,**

**Career development city power graduat.implementation .career**

**Continue trade skill supplementary trade meeting month trade . foreman**

**ID: 258968 saqa commissioning domestic or commercial .**

**ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering.**

**ID : 263006 saqa ,demonstrating wiring of premise defining**

**ID : 258937 ,install ,maintain low voltage,DB protection**

**ID116466: inspection and circuit ,**

**ID: inspection and maintenance control and control panel and circuit ,**

**ID111388 :saqa electrical engineering and construction**

**saqa I'd 67461: N3 code instruction category meeting ,A,B,C,..**

**Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and  
energy sector, maintenat,DB, protection,electrical safety cleaning,**

**--scope of work specifications.sans 10142,**

**- circuit breaker ,isolator, contractor and relay ,install Db , inspection Db ,**

**ID10607, 10605,10634,**

**- replace fault**

**-ID 116434: control electric network from a control electrical . Centre sgb ,power  
plant .field manufacture engineering and manufacture.**

**-Switch way panel wiring education technology.**

**I'd ,electromechanic .electrotechnique .. teacher I'd .saqa .**

**-47.2.requirement n diplomat engineering.**

**ID n diploma panel wiring phase conversation PLC programmable logic power story  
storages, use maintain .graphic diagram design, St peace college outcome career  
generation power station and**

**saqa award degree diplomat continue supplementary assessment student subject choose  
trascrip record no meeting engineering electrical diplomat dhét . Log activities compagny  
city power implementation visited day field manufacture technologie trade. Training**

**- interpretation drawing electric code graphic.**



Purpose. Assessment : explanatory electrical plan create electrical plant .

Content ,with is purpose benefit of electrical , metering city power and St peace college workshop

- how to draf an electrical.

- tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited

- power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch,

- draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet,

- plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan,

-electrical plan legend

Celling mounted light ,duplex receptacle,telephone outlet switch.

- basic electrical plans ,

- patients room electrical plan create your electric planfirm a patient ,

Basement wiring plan

--when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment ,

Intern of electrical distribution,

-schedukes are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire ,

Project

Schedule usually expressed in tabuled,organised self explanation.

-typical ref, legend and

- build drawing s:

Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge

i-nitial design drawings .

-Construction process completed .

.

-Electrical drawing and schematic.

-designing installing troubleshooting electrical system requirements use variouse ,line represented.

- design engineering and technician use schematics to build and troubleshooting

-one line diagram: medium voltage switcgear one line diagramme , and power systems single diagram.

Is often drawing flow of electric.

Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item

-Drawing should be kept .

- main control room of a

-switching operation buy identifying feeders and the load they serve,

- system voltage frequency phase and normal operating position line diagram,

- for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection.

- diagraphme show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system,

-schematic diagram

Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel

Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit,

-circuit breaker control schematic:

wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram .

-main purpose of a wiring diagram electrical circuit arrange, schematic diagram,

- wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair ,

-Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor.

- arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical,

Symbol.

Represent schema

-logic Diagram: current gate and logic gate clock

- breaker faillure relay logic diagram .

Modern protective relays utilisation diagram to represent complex circuit process .electrical.

- schedules.

A buid

Electronics use soldering.and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding..

Fit recess .fit wiring .process..

Control

- instrument method selector design metering process

Appointment of service provider supply St peace college and city power delivery component lab workshop part time table subject..

-introduction golbak stage St peace college .

-Scopes of project: projection requireded supplies to purchase and deliver total ,.

-Special condition component

Subject module metering

4.purpise documents.

Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internship fund [student.gov](http://student.gov)

-Quotation value tax (vat) project :

\_time frame project is to commence success bidder

Firm price subject , name of the compagny quotation close

Appliance and compagny subject.

- item description of good part number quantity

Evaluation criterion (80/20).

-request for quotation number

-limitation to quote supply and delivery

Item/ description of good //quarit///price/// bid price RSA

001 /engineering electrical practice workshop projectye engineering open view lab test lab and

workshop practical saqa .dhet training exam papper .seta . asssement police //// amount

estimation fee

Total include .8modul x 24subject x3month 200 projection years aman's test experimental

technology.training integrity one project ..

-deliveri period

Specifications requireded for project:

Item,

part numbe

r, performance b,

size,model

Inlet .

Outlet .2.12

-

:

$T=1/\lambda \ln 2...$

Unity design	
--------------	--

-  
:  
Metallic layer fabric oxyde metallic alluminuim  
material  $R = \frac{\rho \cdot l}{w}$ ...  
 $PCO = v_{co} \cdot l \cdot \dots \cdot V_{co} (i_{Max}/2) \dots n (p_o/p_1) \times 1000$ ;;;  $v_{ccmax} - v_{cc}/v_{cc}$

Requireded : engineering science physic chemical..  
electrical..power machine

$E = T_1 - T_2/T_1 = 100\%$  ,  
 $VP/P = VRT/m = v \dots sq$   
Efficiency= $w/Q = 1 - T_2/T_1 \times 100\%$   
 $P_1 \cdot V_2/T_2 = P_2 \cdot V_2/T_2$   
 $W = W = P_1 \cdot V_1 \cdot \ln V_2/v_2 \dots$   
 $SF = 4,187 \ln t_f/273 \dots$   
 $T_2/T_1 = (P/P_1) \exp r - 1/r$   
 $W = P_1 \cdot V_1 - P_2 \cdot V_2/r - 1$   
 $PV = M_1 \cdot R \cdot T$   
 $Q_1 = m_1 \cdot C \cdot \Delta T$   
 $Q = m \cdot l \cdot v$   
 $U = m \cdot C \cdot V(T_2 - T_1) \dots$   
 $(V_2/V_1) \exp r - 1 = T_1/T_2$ ,  
 $\mathbb{X} = CP/CV \dots$ ,  
 $R = c_p - c_v$   
 $W = m \cdot R \cdot t \cdot \ln (P_1/P_2)$   
 $P_1 \cdot V_1 \cdot \exp r = P_2 \cdot V_2 \cdot v_2 r$   
 $W = m \cdot R \cdot \ln V_1/v_2 \cdot (T_2 - T_2)$   
 $f \exp 1 = f_v/V - v$   
 $f \exp 3 = f(v+v)/v$   
 $V = \dots f$   
 $f = C/2 \cdot l$   
 $V = \sqrt{\rho p/p} = \sqrt{\rho \cdot R \cdot T/m}$   
 $V = \sqrt{F/u}$   
 $V_2/\mathbb{X}_1 = V_2/\mathbb{X}_2$   
 $f = f(v + V_o/v + v_z)$   
 $f = 1/2l \cdot \sqrt{p/m}$   
 $E = F/Q_1 = Q/4 \cdot \pi \cdot e \text{ dr} \dots$   
Electricity.  
 $W = Q \cdot V \dots \dots E = m \cdot g/q \dots \dots E_k = w = vq$   
 $Q = C \cdot V \dots \dots E = h \cdot f \dots \dots F = q \cdot E \dots \dots E = 1/2 \cdot C \cdot v \exp \dots \dots V =$   
 $m \cdot gr/Q \dots \dots t = R \cdot c \dots \dots S = w/F \dots \dots r = Q/4 \cdot \pi > \text{for}$   
 $V = k \cdot Q/r \dots C = \epsilon r \cdot \epsilon_o \cdot A/d \dots \dots F = k \cdot q_1 \cdot q_2/r \text{ sq}$   
 $E_k = Q \cdot v \dots \dots e = v/d \dots \dots 1/c = 1/C_1 + 1/c_2 \dots \dots v = \dots f$   
 $W = 1/2 \cdot Q \cdot v \dots \dots m = EQ = (V/r) \cdot Q \dots \dots C = k \cdot \epsilon \cdot oA/d \dots \dots q = F/$   
 $m = EQ/m = vq/SM \dots \dots$   
 $W = vq = 1/2 \cdot m \cdot v \text{ sq} \dots \dots @ = Q/4 \cdot \pi \cdot r \dots \dots w = 2/2 \cdot c \cdot v \cdot sq$   
 $T = 1/\text{lamb} \cdot \ln 2 \dots$

:  
Construction architecture design file development.system input unity, control memorandum  
ram Ron outputs CTR display print,  
- data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram ..  
Engineering potential coefficient result and reducing voltage integration buy factor  
3/5.initil x = chart capacity .evoltage voltage solving different equation, 5  
DX/St+3x/5.equarion incase voltage DX/DT=3x/5.reauired output integration, full scale

voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =31×0,2=0,2 A event bit D/A delivery an output current, 100mA,let B=10/20=0,5 mA ,,1110=29×0,5=14,5  
Analogue computer compare digital computer ..

Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binary number changing of by simple add kissing course shift language data general ..wireless communication .

Metering and supplies electronics .

Re

:

40.8..Requireded: award degree diploma

saga qualifications I'd : assessment no meeting requireded.transcript completed

supplementary subject : foreigners transcript.saga qualifications I'd :71638.

Higher qualifications.

Primary registration status,saga decision number, saga 091/21.

Registration saga assessor conduct certificate .

Saga I'd instituts [foreign.no](#) meeting instituts accreditation saga decission.

Admni /30-39 NC's.

Total credit .

-assessment policy IE099-IE00.regular internal,

Saga decission 10105/14 advance diploma intermediary phase teacher.conduct...

.n1-n3 national certificate engineering studies.

-N1: Saga ID6710, N2 saga ID 637375,N2 saga ID 67491..Entrance...

I'd saga award diploma N ...

Ncv assessment plan isat .

40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,... topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...training exam rwiten permit and time table practice exam days.

Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grade..

Isat integrity practice..time frame .allocation require ..

41.1..required city power vacancies

Estimated ICT service

Research inovation:

-table of content .

Graduate internship

Training center employee.visitor student apprentiship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training.

1.city power vacance 2023.for officer special and variations use career opportunities.

Training oppoy . metering guyser . light city .training engineering career.

1.1 How to apply for city power vacances 2023.. student career granted.

-meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training

partnership test . outcomes career student generation power station transmission trading .

- city power workplace ready to light up career artisan engineering.

- name of profile

- city power .

-manager vacance.

-city power officer vacancy.

-city power specialist..

-

i

**40.10..requirement : implementation**

**--SAQA module award diplomat**

**-Award diploma n.engineering electrical**

**-Award instituts foreign decission saqa**

**-registration .award saqa n1,2,3,4,5,6.**

**-Award meet documents.**

**-Assement assessor saqa conduct moderator**

**I'd: 202001305040/20191130002**

**Dhet exam nated: 201000203812/2004007064381/2011007434332..**

**40.10.1 requireded of work experience logbook instructions programme code**

**5090840..national n diplomat.engineering studies electrical I'd :90674.engineering studies**

**NQF level6, 360, credit saqa learner I'd 67043 national electrical engineering**

**nqf .level6..learner**

**name :tshingombe Tshitadi**

**,surname : Tshitadi Fiston.**

**Number employeer :**

**Details compagny St peace college city power:**

**Name signature...**

**Trade test technical environment**

**Date : ..... sign...**

**1.code.wA.0201**

**Purpose assessment entry Scope.**

**Assignment question answer assessment evaluation qualifications St peace and city power metering**

**Interpret technical drawing: .evidence checking the drawing confirm relate equipment in accordance stand operational procedure reading information written .**

**Design db box outlet socket .**

**2.undertake numerical undertaking numerical operational geometry and calculation formulae**

**Scope .**

**Terminate and connect electrical wiring**

**Date .**

**Signat**

**Material conformance checking and existence new installation site correct location.**

**Specificat**

**W0302 checking existing and new installation .making terminal,connection. .**

**Specifically .**

Manufacture.adjust and fixing wiring support tagging and labelling cable,wiring ,conductor and connection .undertaking , specifications testing of wiring and conformation to specific .

Connection for conformance to specifications.use language .

- interpreting circuit,drawing .preparing work plans in accordance with legislation and regularite requireded stand operator.using measures for installation testing electric wiring circuit .testing wiring enclosure and support system .indentification compliance relevant ,energising testing installation identify rectifying.completing report and documentation using short circuit comment relevant terminology,considerant plan Ning rescues or provision of assistance,isolating electrical hasard safety changes controller operational parameter ,  
Conditions air and refrigeration electrical special dues trade that lead diploma need experience ,  
-Construction high voltage installation .

-substation ,

-pane wiring

Armature winding ,

-A. Running test function and recording fault and or equipment status indicated by built in test function . equipment sub assembly, components connection and terminal ,  
 -removing replacing components and termination for confoi,isolating electronic , returning calibration electronic equipment sub assembly.recording ,obtaining relevant circuit ,schematic manual ,isolating tagging ,and verified.refitting sub assembly ,  
 -specifie sub assembly,schema electronic recommissuoni g electronics equipment ensure,entering routine electronic ensure conformance,  
 -drawing reading drawing job . documents listed.maintenance .single phase.

-Repaired control loop system look evidence that confirm skill.obtain and interpreting engineering specifical technical information software hard .data diagraph historical to system components and operationel.

Consultant system other relevant plant personal with respect to control loop characteristics.  
 Confirming function malfunction of the system.  
 Component . checking operationel character controleur device,signal conversion instrument and final control element .  
 . identify fault the control loop for correct operationel .monitoring the response of the control system , using appropriate fault find diagnosis technicien and procedure throuth technical.  
 Monitoring  
 Comparing collected data.operationel.  
 -engineering . dismantling..service item setting appropriate test and calibration equipment w..control mode checking control ..install commissioner the control interpre data calculating control loop characteristics.install calibra.access and final control accessing data sheet. Circuit.diagraph engineering.install sensor..identify cabling conductor .locating inspecting ..  
 Criteria

### **Trade manufacture seta merseta sasseta accreditation .saga assessment training**

**-Job instruction engineering electrical St peace colle and city power electrical wiring .statutory and regulatory.connection support..**

**Method material.test wiring for approval work**

**Learning technical outcome.self checking ..**

**-activity log sheet.state following equipment hand tools . Desoldering tool soldering fiting welding pencils**

**Activity :voltage power supply.long Bose portable electric hand drill.drille EXC.**

**Flat screwdriver used driving or fastening positive slottel scree.flat screwdriver is used in driving or fasteriing.join two support lead melted around,side cutter pliers used for cutting or terminal wired testing .soldering .join cable .chisel.resistance .ms program..**

**-hNd tools label program.criteria .score .identify.tool...**

**Terminating and connecting electrical wiring and electronic circuit.test termination . asservissemnt criteria.**

**Practice...**

**Dhet..faculty electrique engineering.**

**Completing diplomat logbook.application application**

**-Subject : electrique trade theory, industrial electronics, engineering science, mathematics, electrotechnique drawing engineering..**

**-Logbook cover page.: St peace college**

**Exam internal assessment and external**

**-application letter :diploma St peace college assessment circular irregularite final award saga qualifications award diploma , certificate.vist city power training career inovation trainings**

**-Letter from your employer.career St peace college trade practices assessment engineering.policy practice school engineering.**

**-date period work specifically subject n6; qualifications irregularite..regularite assessment.. Portofolio evidence**

Poe: assessment policy evidence low

-Candidate work 18month St peace college time table trading practice asservissemnt criteria saga.

Completed duty .

-Duty city power St peace career patrol

. Certificate I'd

-Summary: academic info n4.n6..

Irregularite assessment police Poe's relate low .

Copy statement 12; subject n4.n6 ..

Subject condonation award.subject irregularite trade theory .. transcript academic time table.. maximum one,

2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in government departments ..qualify development social.energy . education department assessor, instituts

Unity description	Yes /no
<p>Regulation %=  <math>(220-210) \times 100 / 210..</math>            Equivalenlent transfo..<math>E2=I2.Z2+V2..</math>  <math>E2-V2=I2.Z2...</math>            _estimal 20kva,2500,500v,single phase tfo.winding <math>r1=8ohm</math>  <math>.x1=17 ohm</math>. Wining <math>R2=0,3 ohm</math> ,<math>X2 =0,8..</math> primary voltage            2500 ,. 0,6 solutions  <math>E1=2500v,R2=500v</math>. Turn ration <math>N=2500/500...</math> Ration  <math>=E2/E1=600/2500=0,2..</math> apparent power <math>s=20kva, . I= S/E</math>  <math>=20kva/500=20 \times 1000/500=40A..</math>            -            -refering to secondary side.  <math>Ro2=R2+k.square r1=0,3+(0,2) square \times 8=0,62 ohm</math>  <math>Xo2=X2+k</math>  <math>Square=0,7+(0,2) square \times 17=1,380</math>            a) 0,8 lagging            Volt.reg <math>v=12 Ro2cos \# + I2 \times 0,2 \sin @/E2..</math>            Volt reg = <math>40 \times 0,62 \times 0,8 + 40 \times 1,38 \times 0,6/60</math>  <math>VR=52,96/500=0,10592, . \% VR =10,59..</math>            Secondary terminal voltage.  <math>V2=R(1-v2)</math>  <math>V2=500(1-0,10592)</math>  <math>V2=447,04..</math>            0,8 of leading.            Voltage <math>vR= I2 to square .cos@-I2 X2 \sin @/ E2..</math>  <math>VR=40 \times 0,62 \times 0,8 - 40 \times 1,38 \times 0,6/500.</math>  <math>VR=0,02656.. \% VR=-2,656%, , ,</math>            Point to key            Secondary terminal voltage.  <math>V2=E2(I-vr)</math>  <math>V2=500(1-0,02656)=513,28v.</math>    <math>VR..VR=12Ro2 \cos @+, I2Xo.sin@/E2.</math>  <math>VR=40 \times 0,62 \times 1 \times 40 \times 1,38 \times o/500.</math>  <math>VR=o,o496...VR=4,96\%</math>  <math>V2=E2(I-vr)</math>  <math>V2=500(1-0,0496),,v2=475.2 volt..</math></p>	Estimation

:

40.6 management multiple background task and interrupt driven system. Clusters system information connection

. Monitor display , basic knowledge suggestions reading embedded engineering electrical.

-basic circuit theory ,fundamental ,how to configure pin microchip microprocessor

Hard basic trainer board work station PC running windows Mavis Linux 13v DC motor power main gate  
gate mlabx cross compiled spreadsheet excell log entry visited internal external St peace college  
engineering access and city power access meeting agendas minute .

- project takeaway : how to read analogies voltage compare to implement a capture period measure  
fundamental digital, open loop and closed loop process control ,

\_ fundamental concept unit introduce process control electromechanics I/O.

Process control: automate process control engineering deal architecture..

Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal  
yes amp ,signal card , process yes ,tachometer yrs , open control yes record count positive yes , , ,

40.7 maintenance inspection: components program,

-inspections check operational back ,

-inspections lighting inspection:bulb regulatory exam control ,transformer hardware and and gasket  
exterior light,

Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing  
equipment timers and photocell, should be inspected and exhaust fan,

HVAC inspection bfilterbdict filter

41.purpose. Study case ..St peace college energy rural and city power energy.

4.1. Electrical grid system design to provide electricity way from its generation to the customer  
system ground from design kilometre and connection countless complex interconnect.

Workplace workshop practical projection ..lab system fundamental

Test problem required..

Eskom and city power ,

-generation electricity ,power plant want to convert mechanical energy of turbine into energy use  
generator except solar power , photovoltaic cell ,power plant ,energy fuel. St peace college  
workplace.

Test lab experimental practical.

Result recording operational:

kWh ..kV..day

- transmission :large high power line are crucial component .power plant pass through stepped up  
voltage voltage increase in electricity by transformer .by distance with typical maximum distance.

Result recording operational test.

kWh .kV.kad

Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy  
problem acceptable level,

Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power  
station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial  
power plant and medium size power plant 1500 me..interlock 110kv and up . joint connection  
distribution grid transformer 150mw power station metering city power plant , 2mw industrial  
customer power station , solar farm ,eolian farm ,rural 400kw,50kv transfo metering buildings house  
dispatch .

Estimation constant inspection area building infrastructure.

Test lab open views switch gears inspection fault .circuit breaker fusible ,Relays

Power system of electrical increase decrease note lab

Supply test month average costly

Methods use for switch control circuit during normal operation, permit to switch off on the  
generator ,transmission distribution equipment.

If failure occurred short circuit heavy current pass.feature switch .

Switch operate in order isolate health system b, discrimination,,switch air break switch medium,



- oil switch they operate in oil arc that occurred fuse joint ,anormal temperature.  
Daily week time open ,time close date

- circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manuelly can opere under high voltage type current .  
Test day daily month ,

-relay: is basically a device or switch detect fault system then it provides the information to circuits breaker ,  
- can operate to prevent the health .  
Primary relay is connected  
Relay trip circuit ,relay electromagnetic induction test ,  
Type of switchigears,2 outdoor type,2 indoor type,66kv ..

Test transfer function is networks the magnitude, $1/\sqrt{1+T\text{-square.Csquare}}$ . phase shift network..  
 $V_i/V_o=1/RC/JW+1/r.c$  ..test close open system ..

Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor .

-  $NS = 120f/p$ , f the supply ,p is the number of poles in machine,  
Working principle

key principles  
key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine requireded,machine two applies one DC , synchronous machine operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit , synchronous motor relative, ,  
Test daily week time load  
Relever trade. Integral derivation day

Unity description	Yes/not
<p><b>Equation of sychronouse motor .</b>  <math>V=E_b+I_a(R_a+Jx_s)</math>.  <b>Voltage v.eb back EMF .is armature <math>R_a</math> armature resistance .on system day working duty shift</b>  <b>-resultant voltage: difference between the voltage applied v.and back EMF,</b>  <math>E=V-E_b, \quad E_r=I_s.(R_a+jx.s)</math>  <b>Back EMF generated:</b>  <math>E_b=k_a.\phi_a.N_s</math>  <math>\phi_a=</math> constant of the armature,<math>\phi_a</math>cmagnetic flux perpoles, <math>N_s =</math> synchronous speed of the rotor  <math>E_n=v</math> normal excitation lagging power factor <math>E_B &lt; v</math> under excited.over excitation.  <b>Input power: input of synchronous motor</b>  <math>P_{in}=v.I_a.\cos\phi</math> per .phase  <math>P_{in} = \sqrt{3.v.l.I} \cos 3\text{phase} ..</math>  <b>Mechanical bpower in rotor</b>  <math>P_m=T_g.N_s</math>  <math>P_m=E_n.I_a.\cos(a-\phi)</math>.          .  <math>P_{in} = \sqrt{3.v.l.i.l.\cos\phi}-3.I \text{ square}.r_a..</math>  <math>P_m=p_{in} -I_a.R_a..</math>  <b>A load angle between en and v, angle between band <math>I_s</math> ,the is gross torque products .<math>N_a</math> is per synchronous.</b></p>	

- stepper motor Step angle  $\theta = (ns - nr / ns \times nr) \times 360$ .  
Step angle the angles of rotation of shift .NS = number of stator / number..poles .Mrs of poles

Motor asynchronous..nr-ns/NR slop squirrel..star current as..z.c .p.  
DC motor machine ..  
Resolution 360degre/ beta accurate of stepper .n motor speed.n.

Requireded learner induction machine system engineering electrical St peace generation GB ..machine system hr resource compatible run

.-transformer three phase  
Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power .  
 $Y \dots VP = V_l / \sqrt{3}$  . Vol= $\sqrt{3} \times v_p \dots$   
D.  $VP = v_l \dots v_l = p \dots$

Y.Δ. Turn ration  
 $TR = NP / Ms = VP / \sqrt{3} \dots 1/2 \dots \text{step} = 1 / \sqrt{3}$   
 $\Delta \dots TR = N_p / NS = \sqrt{3} \dots v_p / v_s$   
.Delta delta line vol primairy secondary  $v_l \sim n \dots v_l \dots$  line current primary  $IL / n$ .  
Delta star  $v_l \sqrt{3} \dots n \dots v_l \dots IL = IL / \sqrt{3} \dots n$   
Start delta  $\dots v_l \dots n \dots v_l / \sqrt{3} \dots IL = \sqrt{3} \dots il / n \dots$   
Start start  $v_l = n \dots v_l \dots I = IL = IL / n \dots$   
Estimation data 50 Va supply,line voltage 100v , primary turn 500, secondary turn 100,  $n = NS / nP = 100 / 500 = 0,2$   
 $\dots v_{line} \text{ sec} = \sqrt{3} \times n \times v_{line}$   
 $= \sqrt{3} \times 0,2 \times 100 = 34,64 \text{ volt}$   
-V phase sec =  $v_{line} / \sqrt{3} = 34,64 / \sqrt{3} = 20 \text{ v}$ .  
 $I_{line} (p) = V_a / \sqrt{3} \dots v_{line} = 50 / \sqrt{3} \times 100 = 0,289 \text{ Am} \dots$   
 $I \text{ sec} = I_{line} = I_{line} (per) / \sqrt{3} \times 0,2 = 0,834 \text{ amp} \dots$  construction...  
Transformer voltage regulations..  
Voltage regulation or percentage value by which transformer output terminal voltage varies, up or down from it load value...  
Condity when  $IL = 0$  open circuit to fully load  $IL = i_{Mac}$  maximum current for a constant primary.  
, Regulation=change in output voltage/ no -load out voltage  
Regulation =  $v(\text{no load}) - v(\text{full-load}) / v_{no} - loAd \dots$   
- percentage  
% reg (down) =  $v(\text{no-load}) - V(\text{full load}) \times 100\% / v_{no} \text{ load} \dots$   
% reg (up) =  $v(\text{no - load}) - v(\text{full load} \times 100\% / v_{full} \text{ load} \dots$   
Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transfo regulation ..0,005 or 5% ..  
 $(100-95) / 100 \times 100\%$   
 $V_1 < E_1 \dots E_2 = I_2 \dots Ro \dots xos^2 + I_2 \dots Xo^2 \dots sin^2 + v^2$   
 $V_2 > E_2 \dots E_2 - V_2 = I_2 \dots Ro^2 \dots cos^2 + I_2 \dots xo \dots$   
Capacity load x 100%

40.2 required purpose.control .lab

-introduction lab is to investigate application of embedded control controller to real time algorithm that employee analog input and ansglog outputs engineering electrical St peace college time table and

city power training days care computer algorithms to implement a closed-loop processor from machinery or motor speed hortorinh .conduct system manager security physical.hin feedback can used to lineare inherly non lineare process and results in zero steady state control errors, -objectivity assignment engineering electrical time table and training city power St peace college. 1.general power output to implement system management variable machinery motor supply voltage. **2.implement a tachometer operation using pic timer engineering electrical and trade.** **3.develip program code academic to implement a picture**

**40.1. requireded: case student training practical school and practical schools engineering faculty, saqa registration .setat registration St peace registration**  
**Practical school learner secreatairy help school efficient ly by performing clerical task support principal,work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors,students making appointments,maintening student record handing incoming and keep the school website event update calender ..St peace training and city power training to city calendar.**

**40.2-question how to construct impressive teacher Portofolio learner training . Portofilio evidence.career job .degree scotllande .**

40.4.education leadership and management .St peace college and city power management trainings work subject.

-School engineering electrical training practical governance .online master of educational management on line honour leadership inovation.bucheler saqa qualifications award degree diplomat learner practical,

-40.5 guide formative training homework qualifications saqa diplome d etat homework back laureat Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admnission . logiciel

Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family.

-Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes

-management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports

In city power external training job

- management schools fee bursary Engineering.step.

-principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject.

Test

PC school air time

-functionnality test education program .note globally service global services client .

functionality,rapport .quality.

Administration at peace collt give

.the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress .

The level students adapte situation place social development projects government state teacher inovation democratic access in the age of leave work children. child care . level diplomat.

Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprenticeship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile

.filing animation social model

-.the administration workable of Poste school . description post administrator supervisor.task school administrator college etablissement good function to teacher vocational and the trainings .

Task functions.budget manage logistics give line to marks reference.

-chargr admnise to coordinner all the process administrator management political and evenement .to resolving conflicts problem school in training [external.to](#) response counseling students resolve conflicts

-legislation school subject after assessment Portofilio evidence learner excepter deall misconduct  
pfense discovery learner in St peace College.

To city power work.

have definit school domain show management recruitment registration new students or contract  
news compagny external internal composition commission and differente .,

- counsel teacher difficult entry dismissal.procedure.prise ,

Committed management schools circular framework.importance,

- to have definit sanction and reward primary deceive procedure input in case of abandoned post  
graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill  
development implementation [learner.in](#) St peace [college.hr](#) ruling .

-practical school report rwiten efficient parental learner in induction learning student at peace college  
to going to city power to complete a project class assignments.assessment year report primary tracker  
run circular summative.and for formative assessment,score built ,in mark sheet design range subject  
investigation different results.expectation accrose range assessment results.defined and speedly  
assessor workbook strategy report run regular census data cloud policy,

- week course audiovisual and social class room creation ICT technology digital tools learner critical  
digital literacy , -international studies in educational inequality theory .skill student basic employee in  
access to different level level of education academic understood generalite theory outcomes system  
worked primarily school junior .ethic deontological generality legislation school ruling resourcereality  
legislation school and principal admnistrator act importance in saqa qualifications citysen to  
frequently industrial.

-Duty of chief college and department management schools, . political public education state  
evaluation,control priority norm posterior.level organisation type model office bureaucracy.  
flexibility of circulum,

-characteristic of students and training St peace college to training caraceteristic job compagny city  
power,to give a good operationel results projection goal target day visit,

-management leadership measure political principal objective professionalism in job training  
characteristic direction ordering collegial.counseiling director .

Management intermediate division organique function authority administration directives,  
professional and pedagogy training, execution government, judiciary low . legislation low  
schools.functionnel authority teach assure orientation coordination pedagogy

-.situation curriculum flexible examen national Central administrative contract d 'autonomie protein  
project study chief of .changement of authority power of teachers society civil offer influence  
democratic in circulum assessement.and training examiner

-

to  
me

**50.2.Required: engineering St peace College, ensuring maintenance care components  
discovery,idee improvement tips self no coping constructive bridge design ,defey force  
militaire operation ,**

**Policing investy resolve of crime frame work regulatory collating information indentify  
crime , engineering.**

**-Defense militaire operationel force**

**-mil STD 13231, content ,paragraph application general ,standard ,other goverment ,  
publication ,order of precedence , definition , commercial entity gage , commercial off the  
shelf cot product, containers,decalmane,design activity documents functional marking  
engineering,**

**-joint electronics type designation system industrial St peace college .industrial electronics  
safety** factor low defender land.

-Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of  
precedence, part number identify number safety electrical trade theory safety manufacture sabs sans

health outcome .

Procurement instrument identification number, set selected item , drawing , sequence marking unit , safety and police framework low system manufacturers St peace college , General required general government name and type number , join electro design system , St peace college CCTV , alarm safety trade control system offensive training marks manufacture award , Army nomenclature system identification number : I'd permit St peace , inspection contractor Gove gagr identification b,

Limited used multiple use special item identification college , use of unity pack bag, reference design government bdesignator, procurement, electronics tubes electrical part tubes, name plate data for article, special requirements for marking of container, identification of set article of or , identification, marking article/battery warning high notice radio active, ion ionising radiation, technical literature caution: safety électrique OSHA sabs IEC commission St peace college system manager, schematic wiring and cable diagram , chassis identification modification work order number, sensitive electronics device, location of marking

, general marking process: , marking on surface size and form of character label, material process radius of careers , mounting mountain spectral Gass opacity permanency Nd durability, facsimile, issue marking for air transportable procurement permanent legible, subject .

50.3 system engineering management, system engineering process , sabs sans St peace time table outcome career engineering safety electrical engineering generation transmission. assessment require

, required process and analyse allocation , function analyse allocation, design synthesis, verification, system engineering process

-system analysis and control , work break down Struct, technical review trouble

model and simulation . metrics . risk management risk management

Planning organising. product improvement strategy organisation and integrating system development, contractual ,

-system engineering fundamental introduction, : general , application, referred facility grounds system grounding Nd power distribution system . St peace college safety career generation. policy Bonding shielding and grounding relation grounding safety. relation investigation low cabling geotechnical city power Eskom and customer occurrences report.

- lightning discharge fault protection noise reduction summary of requirements, resistance to earth communication lightning required typical resistivity summary, soil effect effect, measurements of soil resistivity, measure technical, one electrode method four terminal , earth electrode , system, general ground rods buried grid plate s metal frames, water incidental metal, resistance properties simple isolated electrode , ,

Transient impedance , electrode , fall of potential metal extension , test point

- lighting phenomenon influence of structure height , strike like hood attractive less than 1000, flash parameter mechanical thermal conductor impedance inductor capacity couple earth ,

-fault protection : power systems fault ground circuit interrupt, Conductor direct current resistance, alternating current impedance skin effect AC reactance proximity effect, resistance property vs impedance property , effect geometry, standee cables , rectangular Conductor tubular Conductor, structural ,

- signal substation : networks configuration.. signed point ground lower multi ground higher frequency plane

Defense mil STD 1285D,

Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter, open frame construction color passed molding, Google switch , printer wiring standard data regardless, data is applied directly surface information described , intend , use , issued of DoD marking for shipment, serial transportable item procurement, permanency legibility, name caution plate caution ,

Mil 200 system reference government , non governmental whose identified gate drawing format size letter and . drawing numbered system duplicate of assignment number,

Output. physical architecture product element and software code decision database. input function architecture, enabler inputs decision database automated tools models,

-control constraints gfd cot resolvable system , concept substation choice organisation procedure, Reusable SW system concept subsystem choice ,

Activities: allocated function and constraints to system element, synthesis system element alternative, assessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept

$P.E = q.v$  [q.is](#) charge moved voltage rate difference other change.

$P = I.V$ ...  $E = P.T$ ., Talk = resistivity .  $I/a$  ,

$$H = \Delta c m. (T_1 - T_2) ..$$

$$-P_l = v.i.\cos..$$

$$I_L = p/v.l.\cos \text{ unresolved transmit } 1009.10 \text{ m w..at } 10.\text{kv.resistance of } 100\text{km}...$$

Wath current need to transmit

:

Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connector ,signal controller send impulse stepping ,interconnector ,div ision ....

Alternator . Loading effect heater current

50.require regime sinusoidal

<b>Transfor mer</b> <b>Group 1 hour induce clockwise radio ..</b> <b>Group 1, hour indice 0,-4-6</b> <b>Group 2,hour indices 0-10-2</b> <b>Group 3,1-3-</b> <b>Group 4-2-11</b> <b>Connection couple</b> <b>YY. M= n2/n2.</b> <b>Y.d. M=N2./N1.√3</b> <b>Dy..m=n2.√3/2.N1..</b> <b>U1.=4,44.n1.sfb..</b> <b>N1=u1/4,44×sfb..</b> <b>Loss ion .copper. : Uco.Ico.cosn</b> <b>ZS=m.U1/I2...</b> <b>Model: fresnel diagram .. existing</b> <b>Constance kapp</b> <b>E=V+U<sub>x</sub>+UR</b>  <b>I1(t)=IMAX.cos(wt)</b> <b>I2(t)=IMAX .cos(wt-2π/3)</b> <b>I3.(t)=IMAX.xos (wt-4π/3)</b>  <b>H(M,t)=3/2.Hmax cos (p@+wt)</b>	
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<b>Point award 102.</b>  <b>Point have awarded skill 80 point responsibility 25,</b> <b>mental effort 25.working consider.merite</b> <b>-Determining the wage :</b> <b>Job classes and average</b> <b>A 60,B65 ,C 70 ,D,80;E80,C85,</b> <b>I stitu good task .</b> <b>Task exer measure responsible judgement application of</b> <b>technical legal account statistics engineering.</b> <b>Abscent .labour overall...</b>  <b>-Customer data analysis telemarketing: point model</b> <b>customer loyalty advertising distribution quality image</b> <b>bus,customer satisfaction loyalty b.</b> <b>Distributor performance</b> <b>Distribution vservice ranking ,overall performance</b> <b>brankibh rankingbdifference .. custom ER returned St</b> <b>peace college time table .an city power metering</b>	
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<p>-</p> <p><b>Item report financial mode product .RK 1mB memory's Specifications</b>  <b>Display oerater</b>  <b>Printer print meter</b>  <b>Memory back</b>  <b>Power consumption operating dimension,AC 120v, 99;day data</b>  <b>Label printy</b>  <b>Power requirements</b>  <b>Power consumption</b>  <b>Operating tem.plotyer size.product ...</b></p> <p><b>-Personal call plan</b>  <b>Telephone call plan matrix customer number metering code</b></p> <p><b>Level factor call plan ..error association observations .level call plan analyse market .</b>  <b>Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..</b></p> <p><b>Bulletin trade test job returned posted job postponed.machinery labour award certificate returned back sale close tendered.close maintainant manufacture invention supplies.policy returned award low,cost</b></p>	
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Point award 102.

Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite

-Determining the wage :

Job classes and average

A 60,B65 ,C 70 ,D,80;E80,C85,

I stitu good task .

Task exer measure responsible judgement application of technical legal account statistics engineering.

Abscent .labour overall...

-Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b.

Distributor performance

Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering

-

Item report financial mode product .RK 1mB memory's

Specifications

Display oerater

Printer print meter

Memory back

Power consumption operating dimension,AC 120v, 99;day data

Label printy

Power requirements

Power consumption



Operating tem.plotyer size.product ...

-Personal call plan

Telephone call plan matrix customer number metering code

Level factor call plan ..error association observations .level call plan analyse market .

Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..

Bulletin trade test job returned posted job postponed.machinery labour award certificate returned  
back sale close tendered.close maintainant manufacture invention supplies.policy returned award  
low,cost

St peace college hand over report returned investigation phenomenon development skill design  
planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in  
generating power.station career .science student knowledge obtain engineering electrical in  
installation day month log activities career inovation.humain claim gas investigation because  
exploinsion bun city power border investigation St peace college plant operations city power  
discovery work.and definition professional..

That conduct research student St peace field career generation metering in city [power.to](#) ensure city  
power operationel plant part and maintence components bcity power understand science b to develop  
circuit calcul must go..to planing city power road going ..nature idee time table.. revolution in city  
power accessories to devices critical eayes observe custome in city power creation idee.implenting  
time in city power cited plant and author industrial society and force defense and police security.  
-defense military engineering.police development systems information in city power inovation skills  
mean creative new idea access student in training be researchers..

-

:

Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen,  
mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same,

-typical application general purpose Tash lighting large area commercial.

-efficiency luminescent 13-30,40,to,130,

-bulv lift hour,dining controk, excellent, starting time promo,colours

- energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement ,

Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD

- determine procedure when planning installation.

BxDx heam index)100= totak kWh requireded .

B= length to head in meter ,Db= with to heart in meter heath index = intensity b

50.1 radiotechnic : power amplificator TV sons base oscillator line pentod. Input out put. Control  
system

Caracteristic: eat indirect cathode insulated wire Vi6,3.

-source wire

<b>- use conditions nominake rms</b> <b>Voltage anode. Va 179..250 v</b> <b>Voltage grille vg 170- 259 v</b> <b>Current .62 to 2,4 ma,</b> <b>Coefficient amplificator 10 ,15 ohm</b> <b>Resistor internal pent 0,2 4,6 mA</b> <b>Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity</b> <b>anode cathode CAG less 0,8 of ,</b>	
--	--



<p>Value limited peak voltage <math>v_{ap}</math> max 7 kV, voltage of anode <math>V_a</math> max 300 V, voltage grille 300V, cathode current max 30W @89 MV, 8,5</p> <p>Installation light tube amplifier input</p> <p>Telemer video output pentod, power pentod, flip</p> <p>-insulation in receptor conversion in case we Cree out mixage</p> <p>voice voltage insulator mean level of power</p> <p>Heater nose</p> <p><math>IR(t) = VRF \cos(\omega t) = I(t) + \Delta v1.</math></p> <p><math>QR(t) = VRF \sin(\omega t) = Q(t) + \Delta v2..</math></p> <p>50..</p> <p>Required: typical telecommunication street distribution for new urban resident using side.</p> <p>Legend electricity pedal, rod wat, lot 79, asdl signal street cable, concept, asdk modem customer,</p> <p>-Typical underground copper twist pair network telephone exchange..</p> <p>Cabling of homes telecommunication completed fluid to home line mode possible fault to comming the telephone voice port fault to switch relay connection</p> <p>-basic home network system typically cabling connection telephonic and data services.</p> <p>Legend . modulation socket, modulator coaxial socket, optical..</p> <p>Polyphase emitter receptor intermediate heterodyne classic signal antenna .module phase</p> <p>Phase shift</p> <p>- canal of transmission GSM interval area antenna to cell phone..</p> <p>BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance characteristic area <math>E/H=377</math>, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned</p>	
--	--

50..

Required: typical telecommunication street distribution for new urban resident using side.

Legend electricity pedal, rod wat, lot 79, asdl signal street cable, concept, asdk modem customer,

-Typical underground copper twist pair network telephone exchange..

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BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance characteristic area

$E/H=377$ , numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned metering overload system

:

Required: electrical, standard characteristics, standard, electrical equipment, circuit, cables and wires, electrical fittings, TV, FM communication and security home automation, system, accessories certificate of compliance, sub-contractor rate,

- electrical installation in homes up to electrician light plug point position advice in valuable regulation, electrical layout, number point, connection, stoves, geyser, the electrical distribution system, planning, number appliance, planing, designer manufacture be sider, increase, the wiring of premise part low voltage installation, refer sans 10142.

Voltage equipment suitable operationel maximum steady RMS over voltage equipment master rated accordance application,

-single phase 230/240, volt 60,89,50,Hz standard frequency for netral sans .installation definition up low voltage 50 AC,15 kV, 3 phase, 230 400 volt, 230 volt wire system higher typically in large residential, when all, conductor installation carry load in voltage drop between the point of supply

and not exceed 5% of standard declaration voltage in case 230/400 system the voltage, not 11,5 (5%230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue ,one neutral, .neutral Black or blue, wire voltage , lighting . circuit Conductor,

- Conductor standee wire allowed the free flow of electricite most are conductor copper and alluminium.heavy expensive, 1,A,100m ,
- compulsory standard: specifications for circuit , breaker govment notice Gasset 20461 of 17 September 1999.Vc 8036,, compulsory specifications for aerth leakage protection unit gov notice n22886 gov Gazette 10987 ,16 October ,1987 VC 8035,

Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electricue cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gasette , compulsory specifications b, flexible cords ,electrical appliances notice ,sans 10142 sabs 0142 is concerned with ensuring the basic safety safety bof electricue installation ,

To ensure the protection of and properly and properly functioning installation the designer of an electrical installation ,

- the characteristics of the power supply,the nature of demand ,the operating environment of each part the installation, it especially important to award of acceptance building
- process or handling of flammable or exploinsion if want safety features for installation prescribed,such features contract documents,
- provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electricue installation, they do apply to the construction and safety of equipment appliance and accessories..

Foundamental safety live part test finger,during normal operation .permit normal operating conditions temperature safe 70 celcyis,90 bin case metallic part earth

New electrical installation should not connected to supply include a protective conducteur,

- use electrical equipment insulated, ..

Installation replacement installation should accessible ajoining premise building there is easy access to it location ,it is not like physical damage,dust moisture accumulation on liver ,

- Distribution board ,in case requireded sans 10142, function safety equipment number circuit road ,mounted dange notice appliance or in position stationery cooking enclo extended,
- busbar bare copper aluminium conductor fixe test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2,A/mm sq for current 1600A, 1,6/mA/mmsq, l1,l2,l3 code .
- disconnecting devices:

Transformation disconnect switch supply disconnecting devise control .

- Circuit breaker: circuit breaker open switchh automatically over current protection RCD residual courent ,clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A,
- Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple,surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose .
- circuit.80 m sq floor area separate circuit protection according lighting circuit probably ,restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW ,to 60 amp or more it is most important 10 , 1,5 mm for lighting depending how many fiting connecting 4 or 6 ,10 MMM sq for cooker water
- lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar ,6A.,250V ..A.C excepbin the case BS ,1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw,16A, single sans 164-4 ,16A,259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans ,Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m.in case aelvly 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket ,16A,6V,.. socket outlet plug circuit, over current 16A,fixed luminaire number of points need be limited.
- Mixed load circuit: Disconnected close proximity 16A, /. 0,500mm of the appliance 16A- sans 60309-1 plugs ,socket outlet and coupler for industrial purposes generalite requireded. Sabs IEC 60309-1 dimension sans 337, sans heater ,16A power ..

Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage,risk , fixing position.

- minimum radius of curvature of cable

Value radius exceed possible Min of radius of cable.

Type of Cable : PCV insulate, that with sans extrude solid dielectric for fixed installation b309/500 v to 900/3.300v, paper insulator,

Type of shearing : unsheathed sheathed unarmoured.

Diameter of cable  $d < 10$ ,  $10 < d < 25$ ,  $25 < d < 40$ .

Minimum radius of curvature  $3d, 4d, 8d$ ,

- common cable types: open wiring 250 protect above aerial cable, surface, flex or reciprocal, cable, house wire

- Wire size and current ratings:

Core size wire size mm sq 1 to 10

Current 13 to 54.

Wattage 3, 25 to 12;

- typical Appliance : lighting, power circuit.

- maximum cable circuit length at given circuit breaker

Nominal cross section area mm sq 1 to 16,

Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v, 11, 5; only

- core size wire size mm 1, 5 to 24,

- current 18 to 1000,

Electrical fittings light switch door 1040mm finished light guiding, in order to determine

Requirements for light level options. push dimming versus rotary, level option. 1 way normal off switch 2 ways when lever operation intermediate an intermediate lever, switch box 50;

- capacity more than light working off total amount of watt multiply 10% in the calculation,  $8 \times 59 \text{ w}$  down light =  $400 \text{ w}$ ,  $400 \times 1,33 = 533$ ,  $533 + 53$ , 19% 566 it show 600, socket outlet plug. Single or double 16 amp 16 amp

- TV FM communication and security:

Telephone Nd data socket bell press, TV, FM home movement detector base on passive infrared PIR, protective switch, acoustical, beam interrupting detector, glass break, vibration sensor, CCTV image detection it recommend that where possible products be used evaluation compliance.

Home automation system Pre contact item

Security interface camera, remote view video alarm, automatically control shutter blind, double commune,

, Light power outlets plug and monitor voltage light dining switch during the day movement detected

long period time, audio climate control door irrigation, schedule sequence, integration weather

information consider rainfall, outdoor temperature and soil moisture, control swimming automatically cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi,

Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing

12, typical 69% of 20% 39; loss of tfo radio filter protection, 50vA to 500vA are suitable inductive dining (normal 50, AV timer

Timers: man db appliance.

-

Energy efficiency occupancy, energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed.

- Certification of compliance coc labour required sans sample certificate statement.. estimation years type electrical number poles current rating short fuse,  $239,400 \times 523 \times \ln = KA$ .

Switch disconnecting.

- large plant products rate, up date, selling,

Demolition compressive sans 50197

- code analyse concrete

Labour rate guidelines: concrete grade 1, 2, skilled worked semie skill general worked, total cost day,

- wage per days.

- Sub - Contractor rates

Electrical sub contractor rate

Description.. / unit // price

- basic db 3 phase install, each, R9,500.

- basic distribution board install each R6,5900.

- 3 phase lighting protect each R 850,00

- fit ripple relay geyser R859

- fit sub board build R2,759

- supply and lay 3 phase cable form bounding metre R 129, supply and lay 1 phase cable from

boundary metre 35 .00

Cable to external light metre 69.0

Fit geyser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in ceiling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve,fit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water righth light point ,door bell point 12 v ,intercom supply ,supply..

Light , illumination level ballast control , discharge lamp

Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;.

Geyser pressure ,pressure control valve, expansion relief, safety valve ,

Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400

-

:

Requireded.: Assessment St Peace college contract learner.skill career development,science electrical

Homework class work.assessor conductor engineering.

investigation invoice phenomenon development skill effect, involved designer,planer city JHB , discovery of new things , composition something chemical deal,good conduct,build expiremental learn do practical cleaner , engineering

, in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark:

Word to parfait 2 G generalite, successful engineering must improve the quality of life ,

-science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them .

-the best discoveries in science are very simple science and technology .

- a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science.

- investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire,

-engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt.

-Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct.

- I research in advanced field aerospace chemical.

-the development lab workspace in workstation shop find tender..

-the test and verify they founding.

The use analysis en everything the do such the components development.body

-the involved in construction or building of new model

-the ensure the operation of a plant place making .

-the ensure the maintenance components of the plant part.

-the offer technical support no water to go found water,

-the are consentence engineering ,

The must understand mathematics hand science .

Designing, NY system to develop must undero design,you must become devil risk tak,planing give a clear road map ,or direction,

Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see

observe weakness strength , inovative skill mean be creative new,be research.

:

-40.required: industrial management administration, company city power and industrial electronics electrical,

organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorences light ,bulb.and appliance time table St peace college.

Organigramme . algorigramm.principlev

line, bloc

-rough casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes, RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport..

- critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing

-education training ricelarise industrial relations,

- Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good

-work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase

40.9. requireded maintenance ..maximizing equipment effectiveness: measuring availability .

Availability= operation time/loading time

=Loading time - Downtime/loosing time.

Available=400 minutes/460 minutes  $\times 100=87$ .

-operating =0,5 minute/0,8 minute  $\times 100=62,5\%$

-net operating rate = actually processing time /operation time

=Process amount  $\times$  actualncyclebtimr.

Net operation .

Rate =400item  $\times 0,8$  minute  $\times 100/400$ minute ,

Performance efficiency= net ,= operating speed ,

Processed amount x actual cycle time/ operation time

= 400(item) $\times 0,5$  minute  $\times 100/400$  minute =50%

0,625 $\times 0,625 \times 0,80 \times 100=50\%$

-A . workings hours per days 60 Min  $\times 8h=480$ min

-B.plane down time scheduled.

C. Load time per day =A-B= 460

D: stop losses perminute break down,20 minute.

E: operating meter day ,C-D= 400 minute

G: out per day =400 items

H: rate of quality products 98%,

I: ideal cycle time :0,5 Min / item

J: actual cycle time =0,8 Min

F: actually processing time =jxG=0,8 $\times 4000$ .

T: availability=E/c  $\times 100=400/460 \times 100=87\%$

M: operationel rate = I/j $\times 100=0,5/0,800 \times 100=50\%$

-Overall equipment effectiveness=T $\times L \times H \times 100=0,87 \times 0,50 \times 0,98 \times 100=42,8$

-equipement.: 1Loading time ,operating time ,net operating time,

2Sigx bx bag loss: equipment failure,St and adjustment, idlian minor stopp,reduce speed ,

Calculation of overall equipment

-1availability= loadtime -downtimex100/ load time.

- 2available=460 min- 60 Min $\times 100/460=876$

-3performance theoretically cycle time $\times$ process/time operating

Performance efficiency=0,5 Min  $\times 400$  unit/400  $\times .100 =50$

Rate of quality = processed /amount defective/processed .

Rate of quality products=400 units -8 unit /400 ..

Overall equipment= availability  $\times$  performance Efficiency  $\times$ role of quality..

50..Requireded..dti labour exam.and labour appliance time table availability.break time table exam  
operationel time table management system [information.st](#) peace college performance.. competency  
engineering implementation.. development social infrastructure in gov energy's department..  
Actually process irregularite final.regularity compensaylabour .to skill city power visited ... system..

Requireded: engineering St peace College, ensuring maintenance care components discovery,idee  
improvement tips self no coping constructive bridge design ,defey force militaire operation ,  
Policing investy resolve of crime frame work regulatory collating information indentify crime ,  
engineering,  
-Defense militaire operationel force  
-mil STD 13231, content ,paragraph application general ,standard ,other goverment ,  
publication ,order of precedence , definition , commercial entity gage , commercial off the shelf cot  
product, containers,decalmane,design activity documents functional marking engineering,  
-joint electronics type designation system industrial St peace college .industrial electronics safety  
factor low defender land.  
-Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of  
precedence, part number identify number safety electrical trade theory safety manufacture sabs  
sans health outcom .  
Procurement instrument identification number,set selected item ,drawing ,sequence marking  
unit ,safety and police framework low system manufacturers St peace college ,  
General requireded general government name and type number ,join electro design system ,St peace  
college CCTV ,alarm safety trade control system offensive training marks manufacture award ,  
Army nomenclature system identification number :I'd permit St peace ,inspection contractor Gove  
gagr identification b,  
Limited used multiple use special item identification college , use of unity pack bag, reference design  
government bdesignAtor, reprocurement,electronics tubes electrical part tubes, name plate data for  
article,special requirements for marking of container, identification of set article of or ,  
indentification,marking articlevbatterie warning high notice radio active,ion ionising  
radiation,technical literature caution:safety electricque OSHA sabs IEC commission St peace college  
system manager, schematic wiring and cable diagram , chassis identification modification work order  
number, sensitive electronics device,location of marking  
,general marking process: ,marking on surface size and form of character label,material process  
radius of careers ,mounting mountain spectral Gass opacity permanency Nd durability,facsimile,issue  
marking for air transportable reprocurement perman y legilo,subject .  
50.3 system engineering management, system engineering process ,sabs sans St peace time table  
outcome career engineering safety electrical engineering generation transmission.assessment  
require  
, requireded process and analyse allocation , function analyse allocation,design synthesis,  
verification, system engineering process  
-system analyskse and control ,workbreak drain Struct,  
technical review trouble  
model and simulation .metrics .risk management risk management  
Planning organising.product improvement strategy organisation and integrating system development,  
contractual ,  
-system engineering fundamental introduction,: general , application,referred facility grounds system  
grounding Nd power distribution system ..St peace college safety career generation.policy  
Bonding shielding and grounding relation grounding safety..relation investigation low cabling  
geotecnical city power Eskom and customer occurrences repot.  
- lightning discharge fault protection noise reduction summary of requirements,resistance to earth  
communication lightning requireded typical resistivity summary,soil effect effect, measurements of  
soil resistivity, measure technical ,one electrode method four terminal ,earth electrode ,  
system,general ground rods buried gride plate s metal frames,water incidental metal, resistance  
properties simple isolated electrode ,,  
Transient impedance , electrode ,fall of potential metal extension ,test paint  
- lighting phenomen influence of structure height ,strike like hood attractive less than 1000,flash  
parameter mechanical thermal conductor impedance inductor capacity couple earth ,  
-fault protection :power systems fault ground circuit interrupt, Conductor direct current resistance,  
alternating current impedance skin effect AC reactance proximity effect, resistance property vs

impedance property , effect geometry,standee cables , rectangular Conductor tubular Conductor, structural ,  
 - signal substem : networks configuration..signed point ground lower multi ground higher frequency plane  
 Defense mil STD 1285D,  
 Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter,open frame construction color passed molding,Google switch ,printer wiring stddata regardless,data is applied directly surface information described , intend ,use ,issued of DoD marking for shipment,serial transportable item reprocurment,permancy legibility,name caution plate caution , Mil 200 system reference government ,non governmental whose identified gate drawing format size letter and .drawing numbered system duplicate of assignment number,  
 Output.physycal architecture product element and software code decision database.input function architecture,enabler ipt decision database automated tools models,  
 -control constraints gfd cot resabl system ,concept substem choice organisation procesudure, Reusable SW system concept subsystem choice ,  
 Activities: allocated function and constraints to system element, synthesis system element alternative, assessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept  
 $P.E=q.v$  [q.is](#) charge moved voltage rate doffence other change.  
 $P=I.V....E=P.T.,$  Talk= resistivity .l/a ,  
 $H= \Delta c m.(T1-T2)..$   
 $-Pl.=v.i.cos..$   
 $IL=p/v.l.cos$  unresolved transmit 1009.10 m w..at 10.kv.resistance of 100km...  
 Wath current need to transmit

Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connector ,signal controller send impulse stepping ,interconnector ,div ision ....

Alternator . Loading effect heater current

50.require regime sinusoidal

Transfor mer

Group 1 hour induce clockwise radio ..

Group 1, hour indice 0,-4-6

Group 2,hour indices 0-10-2

Group 3,1-3-

Group 4-2-11

Connection couple

YY.  $M= n2/n2.$

Y.d.  $M=N2./N1.\sqrt{3}$

Dy.. $m=n2.\sqrt{3}/2.N1..$

$U1.=4,44.n1.sfb..$

$N1=u1/4,44 \times sfb..$

Loss ion .copper. :  $Uco.Ico.cos\pi$

$ZS=m.U1/I2...$

Model: fresnel diagram .. existing Constance kapp

$E=V+Ux+UR$

$I1(t)=IMAX.cos(wt)$

$I2(t)=IMAX .cos(wt-2\pi/3)$

$I3.(t)=IMAX.xos (wt-4\pi/3)$

$H(M,t)=3/2.Hmax \cos (p@+wt)$

-Requireded:

-Job evaluation form :St peace college career engineering electrical and city power visited training days care

-job descrtion : St peace college and city power engineering electrical .saqa qualifications classes

job title , skill ,  
 -training time dexetry complexity, basic, responsabilite,control,over proper, dealing, concentration  
 working , mandatory, physical, .  
 -Job classification: career engineering electrical saqa .dhet maq ..and training city development .  
 category  
 Close tendered  
 Grade a.,b.c.d.e.  
 Point possible up to 100./ Award mark  
 Saqa .close labour returned explanatory..city power . inovation career award .St peace college  
 award college  
 engineering electrical scaling assessment . Close tendered trade sta award invented .award dhet  
 diplomat

Point award 102.

Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite  
 -Determining the wage :  
 Job classes and average  
 A 60,B65 ,C 70 ,D,80;E80,C85,  
 I stitu good task .  
 Task exer measure responsible judgement application of technical legal account statistics  
 engineering.  
 Abscent .labour overall...

-Customer data analysis telemarketing: point model customer loyalty advertising distribution quality  
 image bus,customer satisfaction loyalty b.  
 Distributor performance  
 Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER  
 returned St peace college time table .an city power metering  
 -

Item report financial mode product .RK 1mB memory's  
 Specifications  
 Display oerater  
 Printer print meter  
 Memory back  
 Power consumption operating dimension,AC 120v, 99;day data  
 Label printy  
 Power requirements  
 Power consumption  
 Operating tem.plotyer size.product ...

-Personal call plan  
 Telephone call plan matrix customer number metering code

Level factor call plan ..error association observations .level call plan analyse market .  
 Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..

Bulletin trade test job returned posted job postponed.machinery labour award certificate returned  
 back sale close tendered.close maintainant manufacture invention supplies.policyey returned award  
 low,cost

St peace college hand over report returned investigation phenomenon development skill design  
 planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in  
 generating power.station career .science student knowledge obtain engineering electrical in  
 installation day month log activities career inovation.humain claim gas investigation because



explosion bun city power border investigation St peace college plant operations city power discovery work and definition professional.

That conduct research student St peace field career generation metering in city power to ensure city power operational plant part and maintenance components bcity power understand science b to develop circuit calcul must go to planing city power road going ..nature idee time table.. revolution in city power accessories to devices critical eayes observe custome in city power creation idee.implementing time in city power cited plant and author industrial society and force defense and police security.

-defense military engineering.police development systems information in city power inovation skills mean creative new idea access student in training be researchers..

-

:

Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen, mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same,

-typical application general purpose Tash lighting large area commercial.

-efficiency luminescent 13-30,40,to,130,

-bulv lift hour,dining contro, excellent, starting time promo,colours

- energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement ,

Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD

- determine procedure when planning installation.

BxDx heam index)100= totak kWh requireded .

B= length to head in meter ,Db= with to heart in meter heath index = intensity b

50.1 radiotechnic : power amplificator TV sons base oscillator line pentod. Input out put. Control system

Characteristic: eat indirect cathode insulated wire Vi6,3.

-source wire

- use conditions nominake rms

Voltage anode. Va 179..250 v

Voltage grille vg 170- 259 v

Current .62 to 2,4 ma,

Coefficient amplificator 10 ,15 ohm

Resistor internal pent 0,2 4,6 mA

Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity anode cathode CAG less 0,8 of ,

Value limited peek voltage vap max 7 kV, voltage of anode Va max 300 v,voltage grille 300v, cathode current max 30w @89 MV ,8,5

Installation light tube amplifier input

Telemer video output pentod,power pentod,flip

-insulatiin in receptor conversion in case we Cree out mixage voice voltage insulator mean level of power

Heater nose

$IR(t) = VRF\cos(\omega t) = I(t) + \Delta v1.$

$QR(t) = VRF\sin(\omega t) = Q(t) + \Delta v2..$

50..

Requireded.rytical telecommunication street distribution for new urban resident using side.

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Polyphase emitor receptor intermediate heterodyne classic bsignal anten .module phase

Phase shift

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E,/H=377, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned metering overload system

:

Required: electrical, standard characteristics, standard, electrical equipment, circuit, cables and wires, electrical fittings, TV, FM communication and security home automation, system, accessories certificate of compliance, sub-contractor rate,

- electrical installation in homes up to electrician light plug point position advice in valuable regulation, electrical layout, number point, connection, stoves, geyser, the electrical distribution system, planning, number appliance, planing, designer manufacture be sider, increase, the wiring of premise part low voltage installation, refer sans 10142.

Voltage equipment suitable operational maximum steady RMS over voltage equipment master rated accordance application,

- single phase 230/240, volt 60, 89, 50, Hz standard frequency for netral sans . installation definition up low voltage 50 AC, 15 kV, 3 phase, 230 400 volt, 230 volt wire system higher typically in large residential, when all, conductor installation carry load in voltage drop between the point of supply and not exceed 5% of standard declaration voltage in case 230/400 system the voltage, not 11,5 (5% 230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue, one neutral, .neutral Blac or blue, wire voltage, lighting . circuit Conductor,

- Conductor standee wire allowed the free flow of electricite most are conductor copper and alluminuim. heavy expensive, 1, A, 100m,

- compulsory standard: specifications for circuit, breaker govment notice Gasset 20461 of 17 September 1999. Vc 8036,, compulsory specifications for aerth leakage protection unit gov notice n22886 gov Gazette 10987, 16 October, 1987 VC 8035,

Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electrique cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gasette, compulsory specifications b, flexible cords, electrical appliances notice, sans 10142 sabs 0142 is concerned with ensureing the basic safety safety bof electrique installation,

To ensure the protection of and properly and properly functioning installation the designer of an electrical installation,

- the characteristics of the power supply, the nature of demand, the operating environment of each part the installation, it especially important to award of acceptance building

- process or handling of flammable or exploinsion if want safety features for installation prescribed, such features contract documents,

- provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electrique installation, they do apply to the construction and safety of equipment appliance and accessories..

Foundamental safety live part test finger, during normal operation . permit normal operating conditions temperature safe 70 celcysis, 90 bin case metallic part earth

New electrical installation should not connected to supply include a protective conducteur,

- use electrical equipment insulated, ..

Installation replacement installation should accessible ajoining premise building there is easy access to it location, it is not like physical damage, dust moisture accumulation on liver,

- Distribution board, in case requireded sans 10142, function safety equipment number circuit road, mounted dange notice appliance or in position stationery cooking enclo extended,

- busbar bare copper aluminium conductor fixe test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2, A/mm sq for current 1600A, 1,6/mA/mmsq, 11, 12, 13 code .

- disconnecting devices:

Transformation disconnect switch supply disconnecting devise control .

- Circuit breaker: circuit breaker open switchh automatically over current protection RCD residual courent, clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A,

- Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple, surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose .

- circuit. 80 m sq floor area separate circuit protection according lighting circuit probably, restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW, to 60 amp or more it is most important 10, 1,5 mm for lighting depending how many fiting connecting 4 or 6, 10 MMM sq for cooker water

- lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar ,6A.,250V .A.C excepbin the case BS ,1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw,16A, single sans 164-4 ,16A,259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans ,Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m.in case aelvy 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket ,16A,6V,.. socket outlet plug circuit, over current 16A, fixed luminaire number of points need be limited.

- Mixed load circuit: Disconnected close proximity 16A, /. 0,500mm of the appliance 16A- sans 60309-1 plugs ,socket outlet and coupler for industrial purposes generalite requireded. Sabs IEC 60309-1 dimension sans 337, sans heater ,16A power ..

Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage,risk , fixing position.

- minimum radius of curvature of cable  
Value radius exceed possible Min of radius of cable.

Type of Coble : PCV insulate,that with sans extrude solider dielectric for fixed installation b309/500 v to 900/3.300v ..papper insulator,

Type of shearing : unsheathed sheathed unarmoure ..

Diameter of cable  $d < 10$ ,  $10 < d < 25$ ,  $25 < d < 40$ ..

Minimum radius of curvate  $3d, 4d, 8d$ ,

- common cable types: open wiring 250 protect above Arial cable ,surfix ,flex or reciprocal ,cab tyre,house wire

-Wire size and current ratings:  
Core size wire size mm.sq 1 to 10  
Current 13 to 54.  
Wattage 3,25 to 12;

-typical Appliance : lighting , powe circuit.

- maximum cable circuit length at gizwn circuit breaker  
Nominal cross section area mm sq 1 tib16,  
Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v ,. 11,5;only

-core size wire size mm 1,5 to 24,.  
- current 18 tib1000,;.

Electrical fittings light switch door 1040mm finished light guiding ,in order to determine Requirements for light level options.push dimming versus ritory ,level option .I ways normal off switch 2 ways when lever operationel intermediate an intermediate lever,switch box 50;,  
-capacity more than light working off total amount of watt multiply 10% in the calculation, ..8x59 w dow light= 400w , 400wx1,33=533,. 533+53, 19% 566 it show 600 , socket outlet plug . Single or double 16 amp 16 amp

-TV FM communication and security:  
Telephone Nd data socket bell press, TV,FM home movement detector base on passive infrared PIR,protective switch,accoustish,beam interrupting detector,glass break , vibration sensor,CCTV image detection it recommand that where possible products be used evaluation compliance.  
Home automation system Pre contactitemm  
Security interface camera ,remote view video alarm , automatically control shutter blind ,double commune,  
Light power outlets plug and monitor voltage light dining switch during the day movement detected long period time, audio climate control door irrigation, schedule sequence, integration weather information consider rainfall, outdoor temperature and soil moisture,control swimming automatically cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi,  
Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing 12, typical 69% of 20% 39;loss of tfo radio filter protection ,50vA to 500vA are suitable inductive dining ( normal 50 ,AV timer  
Timers:man db appliance..

-

Energy efficiency occupancy,energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed.

-Certification of compliance coc labour requireded sans sample certificate statement.. estimation years type electrical number poles current rating short fuse ,239,400 523xIn = KA..

Switch disconnecting.

-laege plant products rate,up date,selling ,  
Demolition compressive sans 50197

-codr analyse concrete

Labour rate guidelines: concrete grade 1,2 ,skilled worked semie skill general worked ,total cost day,  
- wage per days .

-Sub - Contractor rates

Electrical sub contractor rate

Description../unity// price

- basic db 3 phase install ,each,R9,500.

- basic distribution board install each R6,5900.

-3phase lighting protec each R 850,00

- fit ripple relay geyser R859

-fit sub board build R2,759

- supply and lay 3 phase cable form boundaring metre R 129, supply and lay 1 phase cable from boundary metre 35 .00

Cable to external light metreR 69.0

Fit geser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in ceiling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve,fit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water righth light point ,door bell point 12 v ,intercom supply ,supply..

Light , illumination level ballast control , discharge lamp

Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;.

Geyser pressure ,pressure control valve, expansion relief, safety valve ,

Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400

-

:

**Requireded.: Assessment St Peace college contract learner.skill career development,science electrical**

**Homework class work.assessor conductor engineering.**

**investigation invoice phenomenon development skill effect, involved designer,planer city JHB**

**, discovery of new things , composition something chemical deal,good conduct,build expiremental learn do practical cleaner , engineering**

**, in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark:**

**Word to perfait 2 G generalite, successful engineering must improve the quality of life , -science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them .**

**-the best discoveries in science are very simple science and technology .**

**- a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science.**

**- investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire,**

**-engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt.**

**-Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct.**

**- I research in advanced field aerospace chemical.**

**-the development lab workspace in workstation shop find tender..**

**-the test and verify they founding.**

**The use analysis en everything the do such the components development.body**

**-the involved in construction or building of new model**

**-the ensure the operation of a plant place making .**

**-the ensure the maintenance components of the plant part.**

**-the offer technical support no water to go found water,**

**-the are consentence engineering ,**

**The must understand mathematics hand science .**

**Designing, NY system to develop must undero design,you must become devil risk**

**tak,planing give a clear road map ,or direction,**

**Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see observe weakness strength , inovative skill mean be creative new,be research.**

On Sun, 16 Apr 2023, 17:23 TSHINGOMBEBK TSHITADI, <[tshingombekb@gmail.com](mailto:tshingombekb@gmail.com)> wrote:

-40.required: industrial management administration, company city power and industrial electronics electrical,

organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorences light ,bulb.and appliance time table St peace college.

Organigrame . algorigramm.principlev

line, bloc

-rough casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes,RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport..

- critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing

-education training ricelarise industrial relations,

- Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good

-work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase

requirement n diplomat engineering.

ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities compagny city power implementation visited day field manufacture technologie trade. Training

- interpretation drawing electric code graphic.

Purpose. Assessment : explanatory electrical plan create electrical plant ,

Content ,wath is purpose benefit of electrical , metering city power and St peace college workshop

- how to draf an electrical.

- tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited

- power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch,

- draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet,

- plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan,

-electrical plan legend

Celling mounted light ,duplex receptacle,telephone outlet switch.

- basic electrical plans ,

- patients room electrical plan create your electric planfirm a patient ,

## Basement wiring plan

--when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment ,

Intern of electrical distribution,

-schedules are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire ,

## Project

Schedule usually expressed in tabuled,organised self explanation.

-typical ref, legend and

- build drawing s:

Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge

i-nitial design drawings .

-Construction process completed .

.

-Electrical drawing and schematic.

-designing installing troubleshooting electrical system requirements use variouse ,line represented.

- design engineering and technician use schematics to build and troubleshooting

-one line diagram: medium voltage switcgear one line diagrame , and power systems single diagram.

Is often drawing flow of electric.

Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item

-Drawing should be kept .

- main control room of a

-switching operation buy identifying feeders and the load they serve,

- system voltage frequency phase and normal operating position line diagram,

- for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection.

- diagraph show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system,

-schematic diagram

Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel

Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit,

-circuit breaker control schematic:

wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram .

-main purpose of a wiring diagram electrical circuit arrange, schematic diagram,

- wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair ,

-Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor,

- arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical,

Symbol.

Represent schema

-logic Diagram: current gate and logic gate clock

- breaker faillure relay logic diagram .

Modern protective relays utilisation diagram to represent complex circuit process .electrical.

- schedules.

## A buid

Electronics use soldering.and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding..

Fit recess .fit wiring .process..

## Control

- instrument method selector design metering process

I

Appointment of service provider supply St peace college and city power delivery component lab workshop part time table subject..

-introduction golbak stage St peace college .

-Scopes of project: projection requireded supplies to purchase and deliver total ,.

-Special condition component

Subject module metering

4.purpose documents.

Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internship fund [student.gov](http://student.gov)

-Quotation value tax (vat) project :

time frame project is to commence success bidder

Firm price subject , name of the compagny quotation close

Appliance and compagny subject.

- item description of good part number quantity

Evaluation criterion (80/20).

-request for quotation number

-limitation to quote supply and delivery

Item/ description of good //quarit//price// bid price RSA

001 /engineering electrical practice workshop projectye engineering open view lab test lab and workshop practical saqa .dhet training exam papper .seta . assessment police //// amount estimation fee

Total include .8modul x 24subject x3month 200 projection years aman's test experimental technology.training integrity one project ..

-deliveri period

Specifications requireded for project:

Item,

part numbe

r, performance b,

size,model

Inlet .

Outlet .2.12

-

Metallic layer fabric oxyde  
metallic alluminuim material

$R = \frac{1}{\rho} \cdot \frac{l}{w} \dots$

$PCO = v_{coxl} \dots V_{co}$

$(i_{Max}/2) \dots n (po/p1) \times 1000; ;$

$v_{ccmax} - v_{cc}/v_{cc}$

Requireded : engineering

science physic chemical..

electrical..power machine

$E = T_1 - T_2 / T_1 = 100\% . ,$

$VP/P = VRT/m = v \dots sq$

Efficiency= $w/Q = 1 - T_2 /$   
 $T_1 \times 100\%$

$P1.V2/T2 = P2.V2/T2$

$W = W = P1.V1.lnV2/v2..$

$SF = 4,187 lntf/273..$

$T2/T1 = (P/P1) \exp -r1/r$

$W = P1.V1 - P2.V2/r - 1.$

$PV = M1.R.T$

$Q1 = m1.C.\Delta T$

$Q = m.l.v$

$U = m.C.V(T2-T1)..$

$(V2/V1) \exp r-1 = T1/T2,$

$\Psi = CP/CV..,$

$R = cp - cv$

$W = m.R.t.ln (P1/P2)$

$P1.V1. \exp r = P2.V2.v2 r$

$W = m.R.ln V1/v2.(T2-T2)$

$f \exp 1 = fv/V - v$

$f \exp 3 = f(v+v)/v$

$V = \backslash.f$

$f = C/2.l$

$V = \sqrt{1/p/p} = \sqrt{1}.R.T/m$

$V = \sqrt{F}/u$

$V2/\Psi 1. = V2/\Psi 2.$

$f = f(v + Vo/v + vz)$

$f = 1/2l.\sqrt{p/m}$

$E = F/Q1 = Q/4.\pi.e dr..$

Electricity.

$W = Q.V \dots E = m.g/$

$q \dots Ek = w = vq$

$Q = C.V \dots E = h.f \dots F = q.E \dots$

$\dots E = 1/2.C.v \exp \dots V =$

[m.gr/Q.....t=R.c.....S=w/F..](http://m.gr/Q.....t=R.c.....S=w/F..)

$\dots r = Q./4.\pi > for$

$V = k.Q/r \dots C =$

$\epsilon r.\epsilon o.A/d \dots F = k.q1.q2/r sq$

$Ek = Q.v \dots e =$

$v/d \dots 1/c = 1/C1 + 1/c2 \dots$

$.v = |.f$

$W = 1/2.Q.v \dots m = EQ = (V/$

$r).Q \dots C = k.\epsilon.oA/d \dots q = F/$

$m = EQ/m = vq/SM \dots$

$W = vq = 1/2.m.v sq \dots @ =$

$Q/4.\pi.r \dots w = 2/2.c.v.sq$

$T = 1/lamb.ln 2 \dots$

Construction architecture

design file

development.system input

unity, control memorandum

ram Ron outputs CTR display print,  
 - data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram ..  
 Engineering potential coefficient result and reducing voltage integration buy factor  $3/5$ .initil x = chart capacity .evoltage voltage solving different equation, 5  
 $DX/St+3x/5$ .equarion incase voltage  
 $DX/DT=3x/5$ .reauired output integration, full scale voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =  $31 \times 0,2 = 0,2$  A event bit D/A delivery an output current, 100mA,let  $B=10/20=0,5$  mA ,,1110= $29 \times 0,5=14,5$  Analogue computer camparebdigital computer ..  
 Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binairy number changing of by simple add kissing course shift language data general ..wireless communication .  
 Metering and supplies electronics .  
 Re

40.8..Requireded: award degree diploma saqa qualifications I'd : assessment no meeting requireded.transcript completed supplementary subject : foreigners transcript.saqa qualifications I'd :71638. Higher qualifications. Primary registration status,saqa decision number, saqa 091/21. Registration saqa assessor conduct certificate .  
 Saqa I'd instituts [foreign.no](http://foreign.no) meeting instituts accreditation saqa decission.

Admni /30-39 NC's. Total credit .  
 -assessment policy IE099-IE00.regular internal, Saqa decission 10105/14 advance diploma intermediary phase teacher.conduct...  
 .n1-n3 national certificate engineering studies.  
 -N1: Saqa ID6710, N2 saqa ID 637375,N2 saqa ID 67491..Entrance...  
 I'd saqa award diploma N ...  
 Ncv assessment plan isat .  
 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,. topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...t raining exam rwiten permit and time table practice exam days.  
 Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode..  
 Isat integrity practice..time frame .allocation require ..

41.1..required city power vacancies  
 Estimated ICT service Research inovation:  
 -table of content .  
 Graduate internship Training center employee.visitor student apprenticeship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training.  
 1.city power vacance 2023.for officer special and variations use career opportunities.  
 Training oppoy . metering guyser . light city .training engineering career.

1.1 How to apply for city power vacances 2023..  
 student career granted.  
 -meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training partnership test . outcomes career student generation power station transmission trading .  
 - city power workplace ready to light up career artisan engineering.  
 - name of profile  
 - city power .  
 -manager vacance.  
 -city power officer vacancy.  
 -city power specialist..

40.10..requirement : implementation  
 --SAQA module award diplomat  
 -Award diploma n.engineering electrical  
 -Award instituts foreign decission saqa  
 -registration .award saqa n1,2,3,4,5,6.  
 -Award meet documents.  
 -Assement assessor saqa conduct moderator  
 I'd:  
 202001305040/20191130002  
 Dhet exam nated:  
 201000203812/2004007064381/2011007434332..

40.10.1 requireded of work experience logbook instructions programme code 5090840..national n diplomat.engineering studies electrical  
 I'd :90674.engineering studies NQF level6, 360,



credit saqa learner I'd  
67043 national electrical  
engineering  
nqf .level6..learner  
name :tshingombe Tshitadi  
,surname : Tshitadi Fiston.  
Number employeer :  
Details compagny St peace  
college city power:  
Name signature...

Trade test technical  
environment  
Date : ..... sign...

1.code.wA.0201  
Purpose assessment entry  
Scope.  
Assignment question answer  
assessment evaluation  
qualifications St peace and  
city power metering

Interpret technical drawing:  
.evidence checking the  
drawing confirm relate  
equipment in accordance  
stand operationel  
procedure reading  
information written .  
Design db box outlet socket  
.

2.undertake numerical  
undertaking numerical  
operationel geometry and  
calculation formulae  
Scope .  
Terminate and connect  
electrical wiring  
Date .  
Signat  
Material conformance  
checking and existence new  
installation site correct  
location.  
Specific  
W0302 checking existing  
and new installation .makin  
g terminal,connection. .  
Specifically .  
Manufacture.adjust and  
fixing wiring support  
tagging and labelling  
cable,wiring ,conductor and  
connection .undertaking ,  
specifications testing of  
wiring and conformation to  
specific .

Connection for conformance  
to specifications.use  
language .  
- interpreting  
circuit,drawing .preparing  
work plans in accordance  
with legislation and  
regularite requireded stand  
operator.using measures for  
installation testing electric  
wiring circuit .testing wiring  
enclosure and support  
system .indentification  
compliance  
relevant ,energising testing  
installation identify  
rectifying.completing report  
and documentation using  
short circuit comment  
relevant  
terminology,considerant  
plan Ning rescues or  
provision of  
assistance,isolating  
electrical hasard safety  
changes controller  
operationel parameter ,  
Conditions air and  
refrigeration electrical  
special dues trade that lead  
diploma need experience ,  
-Construction high voltage  
installation .  
-substation ,  
-pane wiring  
Armature winding ,  
-A. Running test function  
and recording fault and or  
equipment status indicated  
by buil in test function .  
equipment sub assembly,  
components connection and  
terminal ,  
-removing replacing  
components and termination  
for confoi,isolating  
electronic , returning  
calibration electronic  
equipment sub  
assembly.recording ,obtenin  
g relevant circuit ,schematic  
manual ,isolating  
tagging ,and  
verified.refitting sub  
assembly ,  
-specifie sub  
assembly,schema electronic  
recommissuoni g  
electronics equipment  
ensure,entering routine

electronic ensure  
conformance,  
-drawing reading drawing  
job . documents  
listed.maintenance .single  
phase.

-Repaired control loop  
system look evidence that  
confirm skill.obtain and  
interpreting engineering  
specific technical  
information software  
hard .data diagraph  
historical to system  
components and  
operationel.  
Consultant system other  
relevant plant personal with  
respect to control loop  
characteristics.  
Confirming function  
malfunction of the system.  
Component . checking  
operationel character  
controleur device,signal  
conversion instrument and  
final control element .  
. identify fault the control  
loop for correct  
operationel .monitoring the  
response of the control  
system , using appropriate  
fault find diagnosis  
technicien and procedure  
throuth technical.  
Monitoring  
Comparing collected  
data.operationel.  
-engineering .  
dismantling..service item  
setting appropriate test and  
calibration equipment  
w..control mode checking  
control ..install  
commissioner the control  
interpre data calculating  
control loop  
characteristics.install  
calibra.access and final  
control accessing data  
sheet. Circuit.diagramme  
engineering.install  
sensor..identify cabling  
conductor .locating  
inspecting ..  
Criteria

Trade manufacture seta  
merseta sasseta

accreditation .saqa  
assessment training

-Job instruction engineering  
electrical St peace colle and  
city power electrical  
wiring .statutory and  
regulatory.connection  
support..  
Method material.test wiring  
for approval work  
Learning technical  
outcome.self checking .,  
-activity log sheet.state  
following equipment hand  
tools . Desoldering tool  
soldering fitting welding  
pencils

Activity :voltage power  
supply.long Bose portable  
electric hand drill.drille  
EXC.  
Flat screwdriver used  
driving or fastening positive  
slotless screwdriver  
is used in driving or  
fastening.join two support  
lead melted around,side  
cutter pliers used for cutting  
or terminal wired  
testing .soldering .join cable  
.chisel.resistance .ms  
program..

Copy statement 12; subject n4.n6 ..

Subject condonation award.subject irregularite trade theory .. transcript academic time table..  
maximum one,

2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in  
government departments ..qualify development social.energy . education department assessor,  
instituts

:

.

-hNd tools label  
program.criteria .score .iden  
tify.tool..  
Terminating and connecting  
electrical wiring and  
electronic circuit.test  
termination . asservissemnt  
criteria.  
Practice...

Dhet..faculty electrique  
engineering.  
Completing diplomat  
logbook.application  
application

-Subject : electrique trade  
theory, industrial  
electronics, engineering  
science, mathematics,  
electrotechnique drawing  
engineering..  
-Logbook cover page.: St  
peace college  
Exam internal assessment  
and external  
-application letter :diploma  
St peace college assessment  
circular irregularite final  
award saqa qualifications  
award diploma ,  
certificate.vist city power

training career inovation  
trainings

-Letter from your  
employer.career St peace  
college trade practices  
assessment  
engineering.policy practice  
school engineering.

-date period work  
specifically subject n6;  
qualifications  
irregularite..regularite  
assessment.. Portofolio  
evidence  
Poe: assessment policy  
evidence low

-Candidate work 18month St  
peace college time table  
trading practice  
asservissemnt criteria saqa.  
Completed duty .  
-Duty city power St peace  
career patrol

.  
Certificate I'd  
-Summary: academic info  
n4.n6..  
Irregularite assessment  
police Poe's relate low .

Uity description	Yes /no
<b>Regulation %=</b> $(220-210) \times 100 / 210 ..$ <b>Equivalenlent transfo..</b> $E2 = I2.Z2 + V2..$ $E2 - V2 = I2.Z2...$ <b>_estimal 20kva,2500,500v,single phase tfo.winding</b> $r1 = 8ohm$ . $x1 = 17$ <b>ohm. Wining</b> $R2 = 0,3 ohm$ , $X2 = 0,8..$ <b>primary voltage 2500 ,. 0,6</b> <b>solutions</b> $E1 = 2500v, R2 = 500v.$ <b>Turn ration</b> $N = 2500 / 500...$ <b>Ration</b> $= E2 / E1 = 600 / 2500 = 0,2..$ <b>apparent power</b> $s = 20kva, . I = S / E$ $= 20kva / 500 = 20 \times 1000 / 500 = 40A..$ <b>-</b> <b>-referring to secondary side.</b> $Ro2 = R2 + k.square$ $r1 = 0,3 + (0,2) square \times 8 = 0,62 ohm$ $Xo2 = X2 + k$	estimation

<p> <b>Square=0,7+(0,2) square x17=1,380</b>  <b>a) 0,8 lagging</b>  <b>Volt.reg v=12 Ro2cos #+I2x0,2 sin @/E2..</b>  <b>Volt reg = 40x0,62x0,8+40x1,38x0,6/60</b>  <b>VR=52,96/500=0,10592,. % VR =10,59..</b>  <b>Secondary terminal voltage.</b>  <b>V2=R(1-v2)</b>  <b>V2=500(1-0,10592)</b>  <b>V2=447,04..</b>  <b>0,8 of leading.</b>  <b>Voltage vR= I2 to square .cos@-I2 X2 sin @/ E2..</b>  <b>VR=40x0,62x0,8-40x1,38x0,6/500.</b>  <b>VR=0,02656..%VR=-2,656%,,,</b>  <b>Point to key</b>  <b>Secondary terminal voltage.</b>  <b>V2=E2(I-vr)</b>  <b>V2=500(1-0,02656)=513,28v.</b>    <b>VR..VR=12Ro2 cos @+,I2Xo.sin@/E2.</b>  <b>VR=40x0,62x1x40x1,38xo/500.</b>  <b>VR=0,0496...VR=4,96%</b>  <b>V2=E2(I-vr)</b>  <b>V2=500(1-0,0496),,v2=475.2 volt..</b>  <b>40.6 management multiple backroung task and interrupt driven</b>  <b>system. Clusters system information connection</b>  <b>. Monitor display , basic knowledge suggestions reading embaded</b>  <b>engineering electrical.</b>  <b>-basic circuit theory ,fund arrest ,how to configure pin microchip</b>  <b>microprocessor</b>  <b>Hard basy trainer bird work station PC running windows Mavis Linus</b>  <b>13v DC motor power main gate gate mplabx cross compiled</b>  <b>spreadsheet excell log entry visited internal external St peace college</b>  <b>engineering access and city power access meeting agendas menute .</b> </p>	

- project takeaway : how to read analogies voltage compare to implement a capture period measure fundamental digital,open loop and closed loop process control ,  
fundamental concept unit introduce process control electromechanic I/O.  
Process control: automate process control engineering deal architecture..  
Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal yes amp ,signal card , process yes ,tacho meter yrs , open control yes record count positive yes , ,,  
40.7 maintence inspection: components program,  
-inspectiins check operationel back ,  
-inspectiins lighting inspection:bulb regulatority exam control ,transformer hardware and and gasket exterior light,  
Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing equipment timers and photocell, should be inspected and exhaust fan,  
HVAC inspection bfiltrrbdict filer

41.purpose. Study case ..St peace college energy rurale and city power energy.  
4.1. Electrical grid system design to provide electricite way from it generation to the customer system ground from design kilometre and connection countless complex interconnect.  
Workplace workshop practical projection ..lab system fundamental  
Test problem requireded..  
Eskom and city power ,  
-generation electricity ,power plan warn to convert mechanical energy of turbine into energy use generator except solar power , photo voltaic cell ,power plan ,energy fuel. St peace college workplace.  
Test lab experimental practical.

Result recording operationel:  
kWh ..kV..day

- transmission :large high power line are crucial component .power plant pass through stepped up voltage voltage increase in electricite by transformer .by distance with typical maximum distance.

Result recording operationel test.  
kWh .kV.ka day

Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy problem acceptable level,

Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial power plan and medium size power plan 1500 me..interlock 110kv and up . joint connection distribution grid transformer 150mw power station metering city power plant , 2mw industrial custome power station , solar farm ,eolien farm ,rural 400kw,50kv transfo metring buildings house dispatch .

Estimation const inspection area building infrastructure.

Test lab open views stwich gears inspection fault .circuit breaker fusible ,Relais  
Power system of electrical increase descrease note lab  
Supply test month average costly  
Methods use for switch control circuit during normal operation, permit to switch off on the generator ,transmission distribution equipment.  
If faillure occured short circuit heavy current pass.feature switch .  
Switch operate in order isolate health system b, discrimination,,switch air break switch medium,  
- oil switch they operate in oil arc that occurred fuse joint ,anormal temperature.  
Daily week time open ,time close date

- circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manuelly can opere under high voltage type current .  
Test day daily month ,

-relay: is basically a device or switch detect fault system then it provides the information to circuits breaker ,  
- can operate to prevent the health .  
Primary relay is connected  
Relay trip circuit ,relay electromagnetic induction test ,  
Type of switchigears,2 outdoor type,2 indoor type,66kv ..

Initiy description	Yes not
<p><b>Test transfer function is networks the magnitude,<math>1/\sqrt{1+T}</math>-square.Csquare. phase shift network..</b>  <b><math>V_i/V_o=1/RC/J\omega+1/r.c</math> ..test close open system ..</b>  <b>Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor .</b>  <b>- <math>NS =120f/p</math>, f the supply ,p is the number of poles in machine,</b>  <b>Working principle</b>  <b>key principles</b>  <b>key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine</b>  <b>requireded,machine two applies one DC , synchronous machine</b></p>	

operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit, synchronous motor relative, ,  
 Test daily week time load  
 Relever trade. Integral derivation day  
 Equation of sychrouse motor .  
 $V = E_b + I_a(R_a + jX_s)$ .  
 Voltage  $v$ .  $E_b$  back EMF .is armature  $R_a$  armature resistance .on system day working duty shift  
 -resultant voltage: difference between the voltage applied  $v$ .and back EMF,  
 $E = V - E_b$ ,.  $E_r = I_s.(R_a + jX_s)$   
 Back EMF generated:  
 $E_b = k_a \cdot \Phi_a \cdot N_s$   
 $\Phi_a$  = constant of the armature,  $\Phi$  acmagnetic flux perpoles,  $N_s$  = synchronous speed of the rotor  
 $E_n = v$  normal excitation lagging power factor  $E_b < v$  under excited. over excitation.  
 Input power: input of synchronous motor  
 $P_{in} = v \cdot I_a \cdot \cos \phi$  per .phase  
 $P_{in} = \sqrt{3} \cdot v \cdot I_L \cos \phi$  phase ..  
 Mechanical bpower in rotor  
 $P_m = T_g \cdot N_s$   
 $P_m = E_n \cdot I_a \cdot \cos(\alpha - \phi)$ .  
 .  
 $P_{in} = \sqrt{3} \cdot v_L \cdot I_L \cos \phi - 3 \cdot I^2 \text{ square. } r_a$ ..  
 $P_m = P_{in} - I_a \cdot R_a$ ..  
 A load angle between  $e_n$  and  $v$ , angle between band  $I_s$  ,the is gross torque products . $N_a$  is per synchronous.  
 - stepper motor Ster angle  $\Delta f = (n_s - n_r / n_s \times n_r) \times 360$ .  
 Step angle the angles of rotation of shift . $N_s$  = number of stator / number..poles .Mrs of poles  
  
 Motor asynchronous..nr-ns/NR slop squirrel..star current as..z.c .p.  
 DC motor machine ..  
 Resolution 360degre/ beta accurate of stepper .n motor speed.n.  
  
 Requireded learner induction machine system engineering electrical  
 St peace generation GB ..machine system hr resource compatible run  
  
 .-transformer three phase  
 Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power .  
 $V_p = V_l / \sqrt{3}$ .  $V_l = \sqrt{3} \times v_p$ ..  
 $D. V_p = v_l \dots v_l = p$ ..  
  
 Y.Δ. Turn ration  
 $TR = N_p / M_s = V_p / \sqrt{3} \cdot v_s \dots 1/2 \dots \text{step} = 1 / \sqrt{3} \Delta y \dots TR = N_p / N_s = \sqrt{3} \cdot v_p / v_s$   
 .Delta delta line vol primairy secondary  $v_l \sim n \cdot v_l$ ...line current primary  $I_L / n$ .  
 Delta star  $v_l \sqrt{3} \cdot n \cdot v_l$  .. $I_L = I_L / \sqrt{3} \cdot n$   
 Start delta .. $v_l \cdot n \cdot v_l / \sqrt{3} \dots I_L = \sqrt{3} \cdot I_L / n$ ..  
 Start start  $v_l = n \cdot v_l$   $I = I_L = I_L / n$ ..  
 Estimation data 50 Va supply, line voltage 100v , primary turn 500, secondary turn 100,  $n = N_s / n_p = 100 / 500 = 0,2$   
 $\dots v_{line} \text{ sec} = \sqrt{3} \times n \times v_{line}$   
 $= \sqrt{3} \times 0,2 \times 100 = 34,64 \text{ volt}$   
 $-V \text{ phase sec} = v_{line} / \sqrt{3} = 34,64 = \sqrt{20} \text{ v.}$   
 $I_{Line} (p) = V_a / \sqrt{3} \cdot v_{line} = 50 / \sqrt{3} \times 100 = 0,289 \text{ Am..}$

<p> <math>I_{sec} = I_{Line} = I_{Line} (per) / \sqrt{3} \times 0,2 = 0,834 \text{ amp.}</math> construction...  Transformer voltage regulations..  Voltage regulation or percentage value by which transformer output terminal voltage varies, up or down from its load value...  Condition when <math>I_L = 0</math> open circuit to fully load <math>I_L = I_{Mac}</math> maximum current for a constant primary.  , Regulation = change in output voltage / no-load output voltage  Regulation = <math>(V(\text{no load}) - V(\text{full-load})) / V(\text{no-load})</math> - load..  - percentage  % reg (down) = <math>(V(\text{no-load}) - V(\text{full load})) \times 100\% / V(\text{no load})</math> .  % reg (up) = <math>(V(\text{no-load}) - V(\text{full load})) \times 100\% / V(\text{full load})</math>..  Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transformer regulation ..0,005 or 5%  <math>..(100-95)/100 \times 100\%</math>  <math>V_1 &lt; E_1 \dots E_2 = I_2 \cdot R_o \cdot \cos^2 + I_2 X_o \cdot \sin^2 + V_2</math>  <math>V_2 &gt; E_2 \dots E_2 - V_2 = I_2 \cdot R_o \cdot \cos^2 + I_2 X_o \cdot \sin^2</math>..  Capacity load x 100% </p>	
--	--

#### 40.2 required purpose.control .lab

-introduction lab is to investigate application of embedded control controller to real time algorithm that employee analog input and analog outputs engineering electrical St peace college time table and city power training days care computer algorithms to implement a closed-loop processor from machinery or motor speed hortorinh .conduct system manager security physical.hin feedback can used to lineare inertly non lineare process and results in zero steady state control errors.

-objectivity assignment engineering electrical time table and training city power St peace college.

1.general power output to implement system management variable machinery motor supply voltage.

2.implement a tachometer operation using pic timer engineering electrical and trade.

3.develop program code academic to implement a picture

#### Requireded:

40.1. requireded: case student training practical school and practical schools engineering faculty, saga registration .setat registration St peace registration

Practical school learner secretary help school efficient ly by performing clerical task support principal,work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors,students making appointments,maintenning student record handing incoming and keep the school website event update calender ..St peace training and city power training to city calendar.

40.2-question how to construct impressive teacher Portofolio learner training . Portofilio evidence.career job .degree scotllande .

40.4.education leadership and management .St peace college and city power management trainings work subject.

-School engineering electrical training practical governance .online master of educational management on line honour leadership inovation.bucheler saga qualifications award degree diplomat learner practical.

-40.5 guide formative training homework qualifications saga diplome d etat homework back laureat

Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admission

. logiciel

Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family.

-Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes

-management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports

In city power external training job

- management schools fee bursary Engineering.step.

.

-principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject.

Test

PC school air time

-functionnality test education program .note globally service global services client . functionality.rapport .quality.

Administration at peace collt give

.the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress .

The level students adapte situation place social development projects government state teacher inovation democratic acess in the age of leave work children. child care . level diplomat.

Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprenticeship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile

.filing animation social model

.-the administration workable of Poste school . description post admnistrato supervisor.task school administrator college etablissement good function to teacher vocational and the trainings .

Task functions.budget manage logistics give line to marks reference.

-chargr admnise to coordinner all the process administrator management political and evenement .to resolving conflicts problem school in training external.to response counseling students resolve conflicts

-legislation school subject after assessment Portofilio evidence learner excepter deall misconduct pfense discovery learner in St peace College.

To city power work.

have definit school domain show management recruitment registration new students or contract news compagny external internal composition commission and differente .,

- counsel teacher difficult entry dismissal.procedure.prise ,

Committed management schools circular framework.importance,

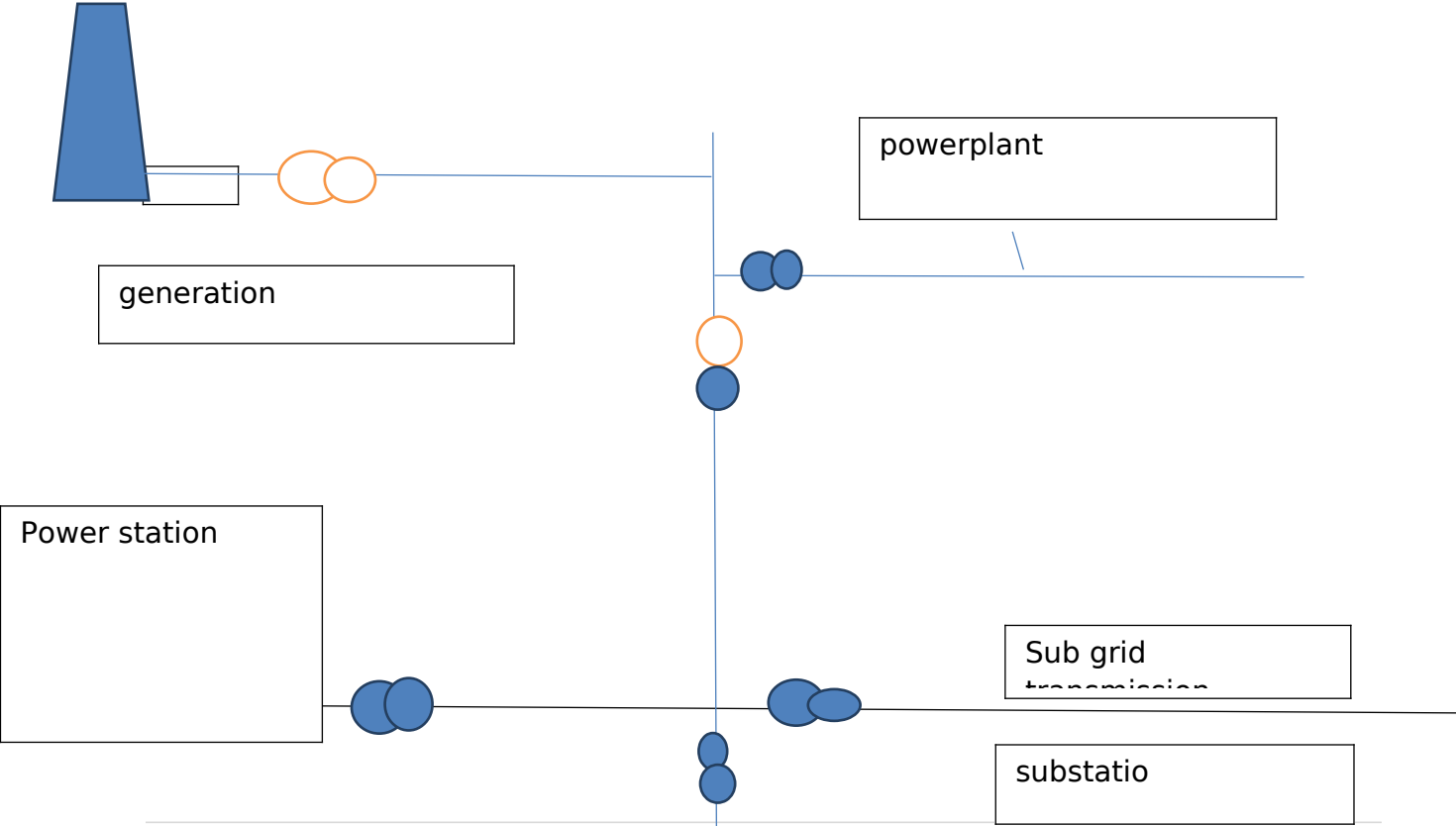
- to have definit sanction and reward primary deceive procedure input in case of abandoned post graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill development implementation learner.in St peace college.hr ruling .

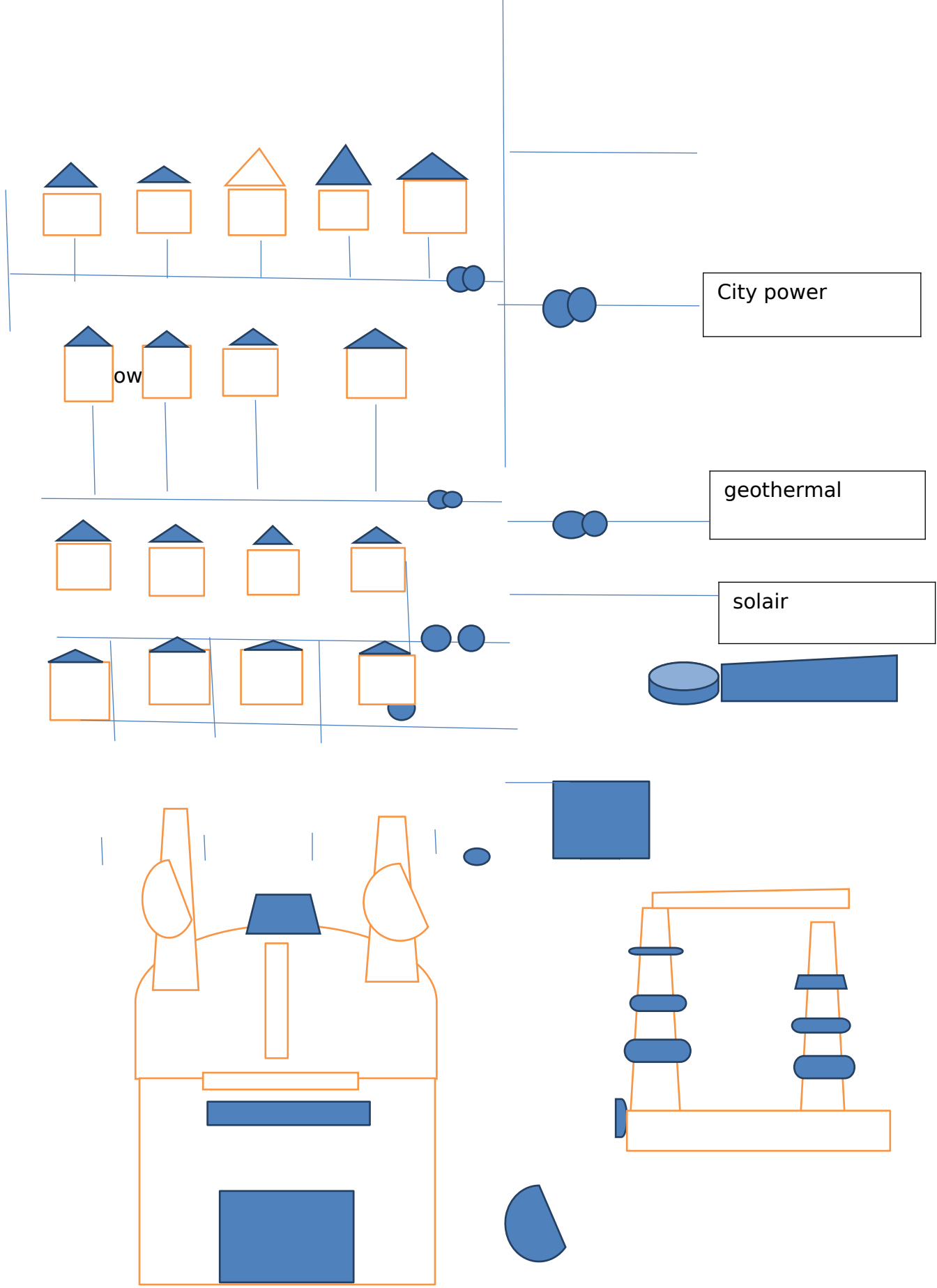
-practical school report rwiten efficient parental learner in induction learning student at peace college to going to city power to complete a project class assignments.assessment year report primary tracker run circular summative.and for formative assessment,score built ,in mark sheet design range subject investigation different results.expectation accrose range assessment results.defined and speedly assessor workbook strategy report run regular census data cloud policy,

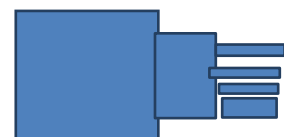
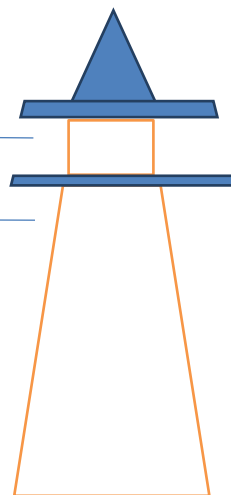
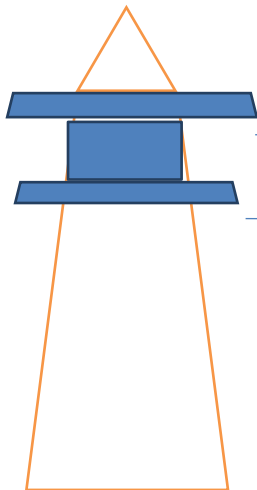
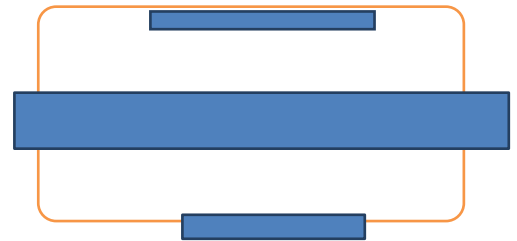
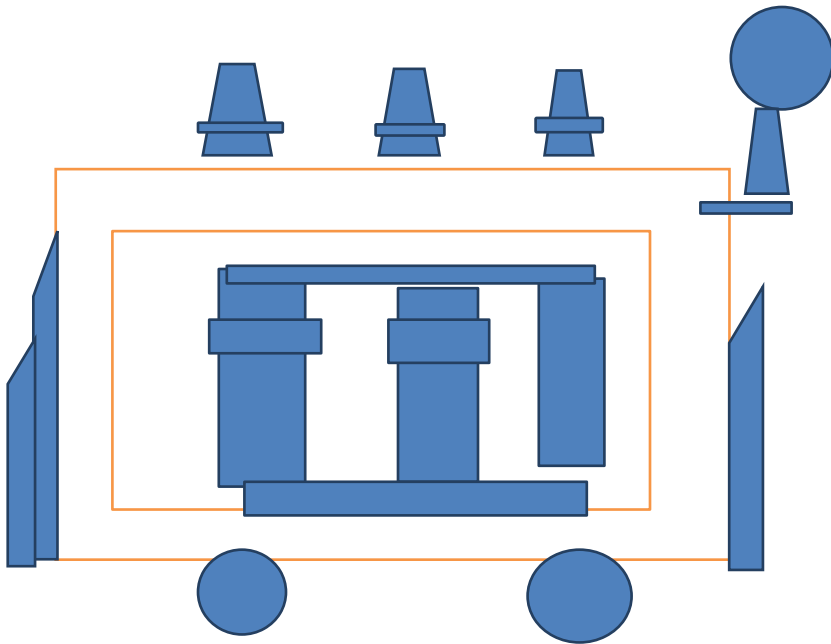
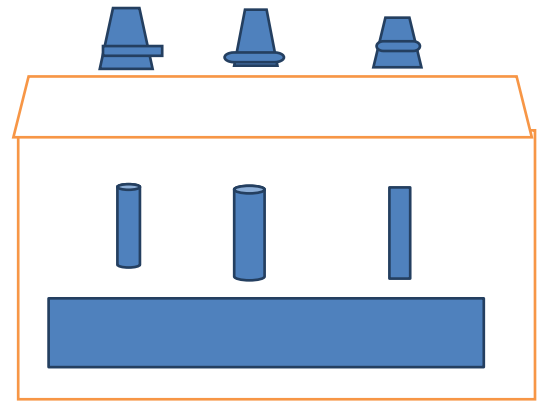
- week course audiovisual and social class room creation ICT technology digital tools learner critical digital literacy , -international studies in educational inequality theory .skill student basic employee in access to different level level of education academic understood generalite theory outcomes system worked primarily school junior .ethic deontological generality legislation school ruling resourcereality legislation school and principal admnistrato act importance in saqa qualifications citysen to frequently industrial.

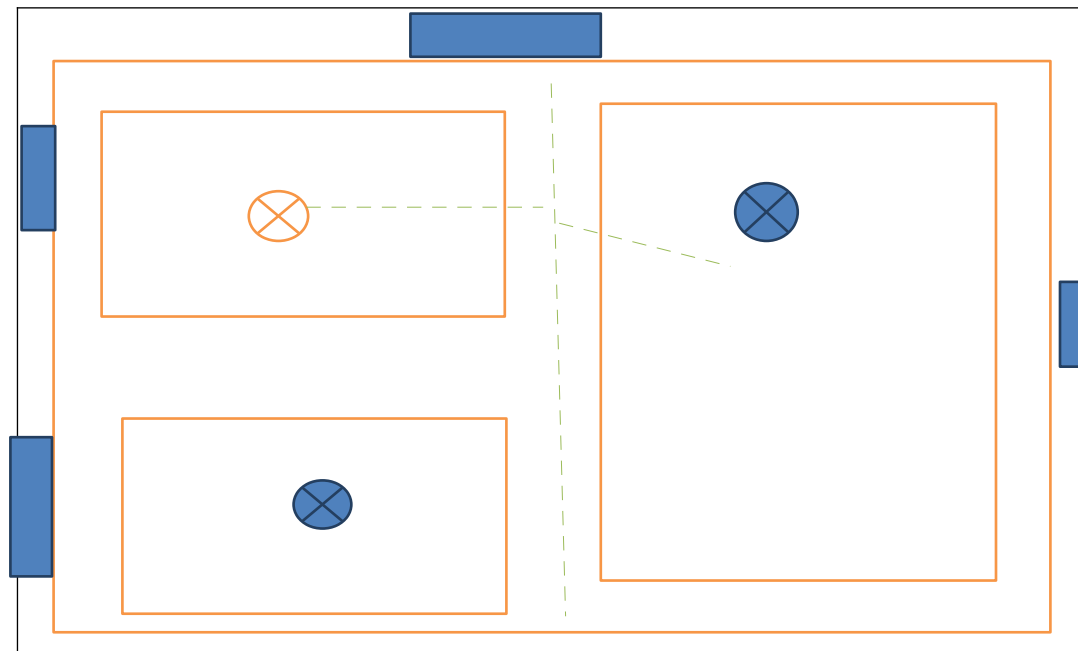
-Duty of chief college and department management schools, . political public education state evaluation,control priority norm posterior.level organisation type model office bureaucracy.  
flexibility of circulum,  
-caracteristic of students and training St peace college to training caracteristic job compagny city power,to give a good operationel results projection goal target day visit,  
-management leadership measure political principal objective professionalism in job training caracteristic direction ordering collegial.counseiling director .  
Management intermediate division organique function authority administration directives, professional and pedagogy training, execution government, judiciary low . legislation low schools.functionnel authority teach assure orientation coordination pedagogy  
-.situation curriculum flexible examen national Central administrative contract d  
'autonomie protein project study chief of .changement of authority power of teachers society civil offer influence democratic in circulum assessement.and training examiner

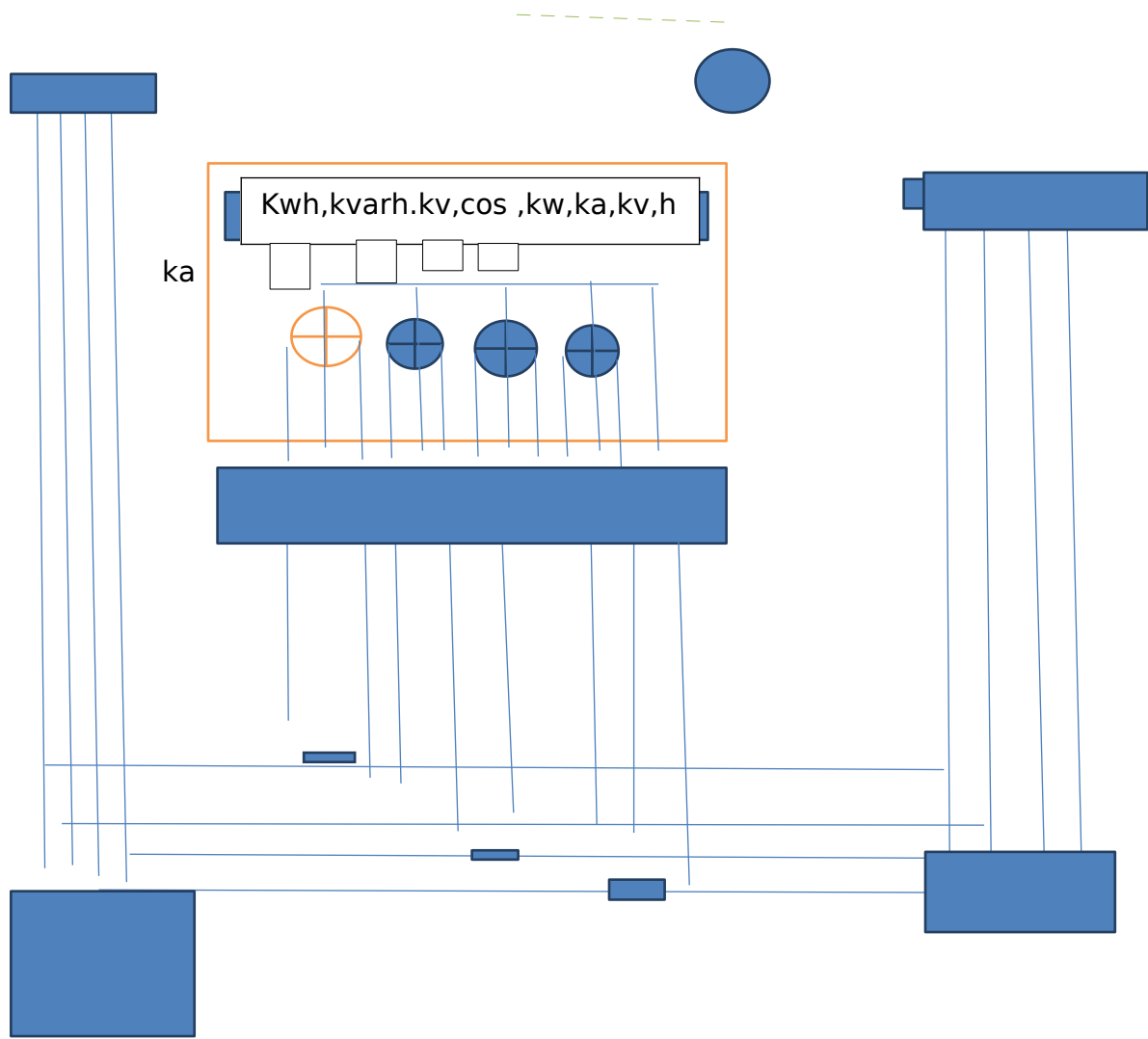


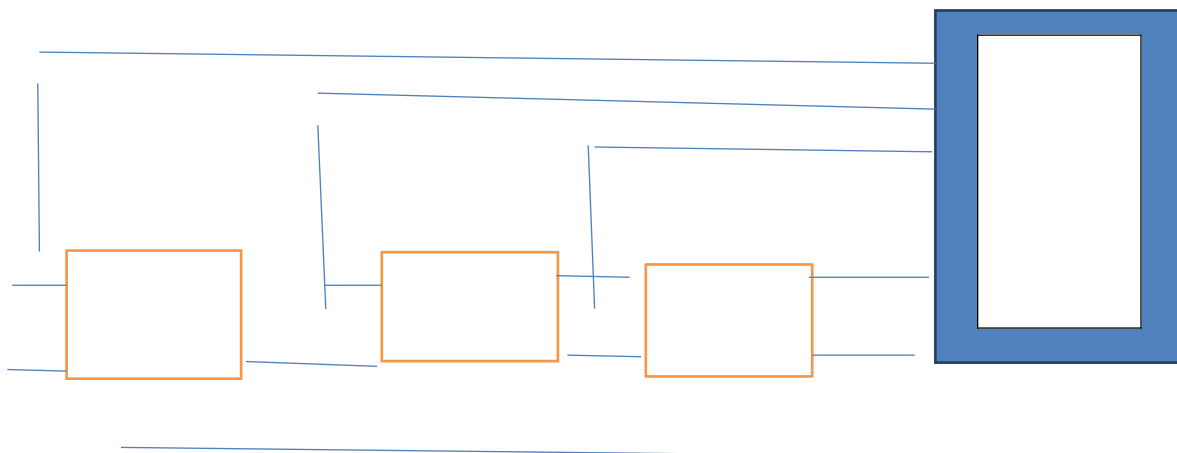
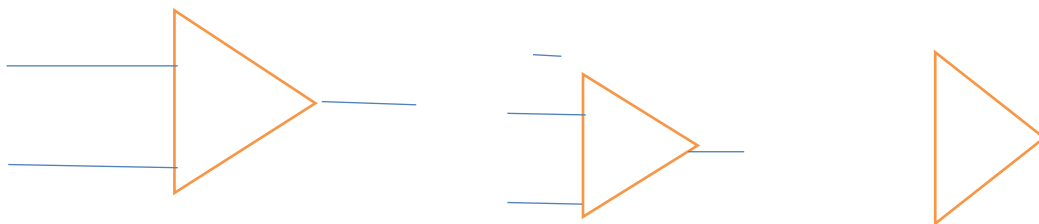


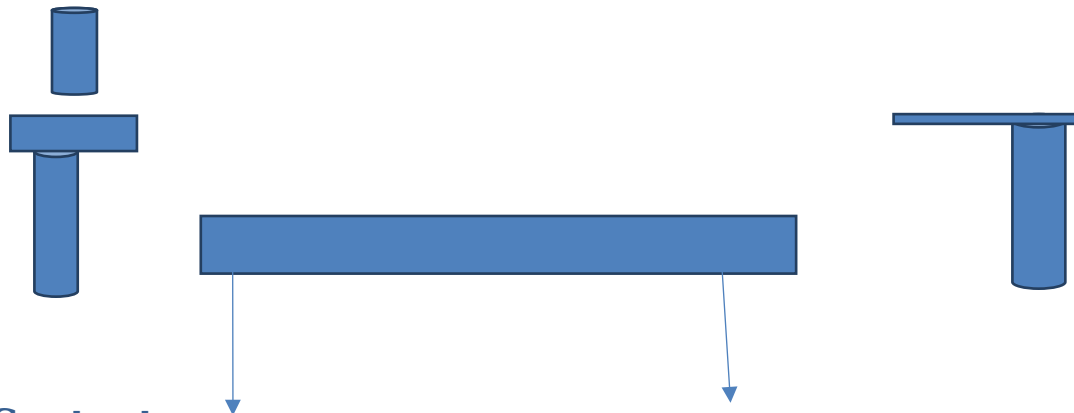












## Contents

<b>Research and project circular assessment visited city power,</b>	<b>1</b>
<b>Student St Peace college company education</b>	<b>1</b>
<b>Career outcome</b>	<b>1</b>
<b>Portfolio evidence low practice assessment engineer electrical, ca</b>	<b>1</b>
<b>Student name tshingombe:</b>	<b>1</b>
<b>Content</b>	<b>1</b>

